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ABSTRACT

Discussed in the eight conference papers on creativity and the gifted implications of federal legislation for the gifted, the development of a composite measure of artistic creativity, and an empirical study of cognitive style and creative problem solving in junior high school students. A paper on the identification of creativity in writers compares two approaches to the study of creativity: the cognitive-factor approach, which emphasizes intellectual aspects of creativity, and a personality approach. Additional papers concern the effect of subject specialists on gifted children and the school program, identification of academically talented black students, curriculum for nurturing black talent, and similarities of attitudes and background factors among successful women. (KW)

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Exceptional Children Conference Papers

Creativity and the Gifted

Papers Presented at the

50th Annual International CEC Convention

Washington, D.C.

March 19-24, 1972

Compiled by

The Council for Exceptional Children

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Table of Contents

Federal Legislation and It's Implications for the Gifted and Talented 1
William G. Vassar, Connecticut State Department of Education

Let's Give Creativity a Chance 16
Helen Talle Koteen

An Empirical Study of Cognitive Style and Creative Problem Solving 25
T. Jerome Rookey and Leon Hyer

Identifying Creativity in Writers 38
Arlene R. Barro, Association of American Medical Colleges

The Effect of Subject Specialists on Gifted Children and the School Program 54
Virginia Z. Ehrlich, Board of Education of the City of N.Y.

The Identification of Academically Talented Black Students: A Hidden Exceptionality 77
Allen R. Sullivan, University of Minnesota

Curriculums for Nuturing Black Talent During the Elementary and Secondary School Years 92
David L. Mallette

Similarities of Attitudes and Background Factors Among Successful Women, Barbara B. Hauck 96

FEDERAL LEGISLATION AND IT'S IMPLICATIONS FOR THE GIFTED AND TALENTED

Presented at the 1972 Convention
of the
Council for Exceptional Children
Washington, D. C.
March 1972

William G. Vassar
Consultant for Gifted and Talented
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You have been kind enough to invite me to such a lovely setting tonight, to offer what advice I can with regard to federal legislation and its' implications for the gifted and talented.

I am happy to try. I certainly can be candid, and that in itself should be, in one degree or another, helpful. I would like to make it clear that the views I express tonight are strictly personal, and are in no way to reflect a departmental position of my state agency. And I should caution you further that two decades of experience has, at least the effect of making one less confident than you might suppose, that there are neat or easy solutions to problems that cover a spectrum of human concerns, from the harshly material to the nearly spiritual, with the politically realistic somewhere in between. Ultimate judgments regarding educational policies at the state and federal level are made in such a political context.

We have reached a point in time where we have taken some important steps toward federal involvement in the education of the gifted and talented. Maybe we should take a moment to reflect on where we have travelled in three short years. Some of you may recall the submission of Senate Bill 718 to the U.S. Senate by Senator Javits and the same bill simultaneously introduced in the House (January 28, 1969) H.R. 13304 by Congressman Erlenborn of Illinois. This bill called for certain ammending actions to Titles I, III and V of the Elementary and Secondary School Act and an amending action to Section 521 of Higher Education Act of 1965. These amending actions would allow the words "gifted and talented" to be added as target groups for utilization of existing monies under the various titles. Another major component of this bill mandated the U.S. Commissioner of Education to conduct a comprehensive study to (1) determine the extent to which special educational assistance programs are necessary or useful to meet the needs of the gifted and talented; (2) show which existing Federal legislation

is being used to meet the needs of the gifted and talented; (3) evaluate how Federal educational assistance programs can be more effectively used to meet these needs; and (4) recommend which new programs, if any, are needed to meet these needs. The bill further mandated the Commission to report his findings together with his recommendations to the Congress of the United States.

As many of you know the bill called for no added appropriations, but even there we have many obstacles to hurdle before the bill was passed in both Houses during the fall of 1969. Early in the spring of 1969, it was highly doubtful whether hearings would be conducted by the various education sub-committees in the Senate and House. Some of us had the opportunity to dialogue with staff members from the Yarborough and Pucenski sub-committees and to ask how we could nurture encouragement in all of fifty states to bring about hearings and later passage of the initial bill.

For the first time, in the history of education of the gifted and talented; a nationwide campaign was conducted to encourage the hearings by letters, telegrams, etc. to both houses of the Congress. This campaign involved members of all national organizations, state organizations, parents, professional and lay publics.

The hearings were held before both the Senate and House Sub-Committees in July 1969, and many of you had an opportunity to prepare testimony utilized by some of us who had the privilege of representing the field before both committees. By this time, the various lobbying agents were able to gain support from both sides of the aisle for the bill. Both houses passed the bills in October 1969.

We called it a visibility bill and knew that we now had a golden opportunity to construct a continuing visibility at the federal level for our

gifted and talented children and youth. As you probably remember the various amending actions became part of ESEA and EPDA and the U. S. Commissioner had the mandate for the comprehensive study.

Early in August 1970, a small group met in Washington to assist U. S. O. E. in exploring the various ways that the study could be designed, developed and implemented. In early fall of 1970, another group was called in to provide a wider perspective of the study. The study was placed in the office of the Deputy Associate Commissioner of Planning, Research and Evaluation and Mrs. Jane C. Williams was named as coordinator of the study. I must say that California played an important role in this study with Ruth Martinson, Paul Plowman and Irving Sato delivering in the only way they know - quality without reservation. Many parameters were explored (too lengthy to go into in detail) such as regional hearings, advocacy study, delivery of services study, research study, etc. The study was completed in July 1971 and the findings and recommendations of the Commissioner of Education were forwarded to the President of the United States, the Senate and the House in late fall of 1971. The major findings of the study - - those with specific relevance to the future planning at the national level are summarized as follows:

... A <u>conservative</u> estimate of the gifted and talented population ranges between 1.5 and 2.5 million children out of a total elementary and secondary school population (1970 estimate) of 51.6 million.

... Existing services to the gifted and talented do not reach large and significant subpopulations (e.g. minorities and disadvantaged) and serve only a very small percentage of the gifted and talented population generally.

... Differentiated education for the gifted and talented is presently perceived as a very low priority at Federal, State, and most local levels of government and educational administration.

... Although 21 States have legislation to provide resources to school school districts for services to the gifted and talented, such legislation in many cases merely represents intent.

... Even where there is a legal or administrative basis for provision of services, funding priorities, crisis concerns, and lack of personnel cause programs for the gifted to be miniscule or theoretical.

... There is an enormous individual and social cost when talent among the Nation's children and youth goes undiscovered and undeveloped. These students cannot ordinarily excel without assistance.

... Identification of the gifted is hampered not only by costs of appropriate testing - when these methods are known and adopted - but also by apathy and even hostility among teachers, administrators, guidance counselors and psychologists.

... Gifted and talented children are, in fact, deprived and can suffer psychological damage and permanent impairment of their abilities to function well which is equal to or greater than the similar deprivation suffered by any other population with special needs served by the Office of Education.

... Special services for the gifted (such as the disadvantaged) and talented will also serve other target populations singled out for attention and support.

... Services provided to gifted and talented children can and do produce significant and measurable outcomes.

... States and local communities look to the Federal Government for leadership in this area of education, with or without massive funding.

... The Federal role in delivery of services to the gifted and talented is presently all but nonexistent.

These findings, which are fully documented provide ample evidence of the need for action at the national level to eliminate the widespread neglect of gifted and talented children. Federal leadership in this effort is required to confirm and maintain provisions for the gifted and talented as a national priority, and to encourage the States to include this priority in their own planning. Recognizing these needs, the Federal level is taking steps to meet them immediately. Ten major activities, under existing education legislation, will be initiated in 1971-1972.

1. The Deputy Commissioner for School Systems will complete a planning report for the Commissioner on implementing a Federal role in education of gifted and talented children by February 1, 1972.
2. Assignment of continuing program responsibility for gifted and talented education within U.S.O.E. will be made to the Deputy Commissioner for School Systems, with the expectation of further delegation to the Bureau of Education for the Handicapped. A staff program group will initially consist of three professional positions with appropriate secretarial and staff support services.
3. A Nationwide field survey will obtain information on successful programs and program elements, develop more precise cost figures, improve evaluation procedures, furnish the bases for model programs, and develop a clearinghouse on gifted and talented education.
4. U.S.O.E. will utilize title V, ESEA and other authorizations, to strengthen State Education Agencies capabilities for gifted and talented education.
5. U.S.O.E. will support in the summer of 1972 two national leadership training institutes to upgrade supervisory personnel and program planning for the gifted at the State level.

6. U.S.O.E. will support additional program activities in major research and development institutions which have the interest and capacity to work on learning problems and opportunities among minority groups.
7. U.S.O.E. will build on the career education models being developed by the National Center for Educational Research and Development by including program activities specific to employer-based career education for the gifted and talented.
8. The Commissioner has requested special attention in at least one of the comprehensive experimental school projects to the individualization of programs to benefit the gifted and talented students as a component of the comprehensive design to effect educational reform.
9. U.S.O.E. will continue to encourage ESEA title III activities through communication with State education agencies, issuance of program guidelines, and cooperative assignment of U.S.O.E. title III program staff to the Gifted and Talented Program Group.
10. One staff member will be identified in each of the ten Regional Offices of Education as responsible, at least part time, for gifted and talented education.
11. The existing OE programs relating to higher education will be carefully studied by the Gifted and Talented Program Group in order to optimize their potential for the gifted and talented population and teachers of these students.

Three years have brought us to the threshold of a major national involvement for the gifted and talented in all of our fifty states. Let us now take a look at the next major legislative step recently designed and developed for submission to the present session of the Congress. This potential legislation is more than a visibility thrust; it is a viable legislative vehicle designed to meet some

of the glaring needs of the gifted and talented throughout America. It is a viable vehicle, in my estimation, because it relates fiscal considerations to some of the most glaring needs.

The purpose of the proposed legislation is to assist state and local educational agencies in developing programs for gifted and talented children and youth. The following concepts are designed to meet specific existing national needs for such children and youth:

ADMINISTRATION AND INFORMATION

1. The Commissioner of Education shall designate an administrative unit within U.S.O.E. to administer the programs and projects authorized by this Act and coordinate all federal programs for gifted and talented children and youth.

2. The Commissioner of Education shall establish independently or locate in an existing clearinghouse the National Clearinghouse on Gifted and Talented Children and Youth. It shall obtain and disseminate to the public - information pertaining to the education of gifted and talented children and youth. The Commissioner is authorized to contract with public, private, or private non-profit agencies or organizations to establish and operate the Clearinghouse.

   There is authorized to be appropriated for the establishment and operation of the National Clearinghouse on Gifted and Talented Children and Youth $1 million for the fiscal year ending June 30, 1973, and $1 million for the fiscal year ending June 30, 1974.

ASSISTANCE TO STATES

1. The Commissioner is authorized to make grants pursuant to the provisions of this part for the purpose of assisting the States in the initiation, expansion, and improvement of programs and projects (including the acquisition of equipment) for the education of gifted and talented children

and youth at the preschool, elementary, and secondary school levels. For the purpose of making grants under this part there is authorized to be appropriated $50,000,000 for the fiscal year ending June 30, 1973, and $60,000.000 for the fiscal year ending June 30, 1974.

2. From the total amount appropriated pursuant to section 301 for any fiscal year the Commissioner shall allot to each State an amount which bears the same ratio to such amount as the number of children aged three to twenty-one, inclusive, in the State bears to the number of such children in all the States, except that no State shall be allotted less than $50,000.

3. Any State which desires to receive grants under this part shall submit to the Commissioner through its State educational agency a state plan in such detail as the Commissioner deems necessary. The Commissioner shall not approve a State plan or a modification of a state plan under this part unless the plan meets the following requirements:

(a) The plan must provide satisfactory assurance that funds paid to the State under this part will be expended, either directly or through local educational agencies, solely to initiate, expand, or improve programs and projects, including preschool programs and projects, (A) which are designed to meet the special educational and related needs of gifted and talented children and youth throughout the State, (B) which are of sufficient size, scope, and quality (taking into consideration the special educational needs of such children) as to give special educational needs of such children) as to give reasonable promise of substantial progress toward meeting those needs, and (C) which may include the acquisition of equipment. Nothing in this part shall be deemed to preclude two or more local educational agencies

from entering into agreements, at their option, for carrying out jointly operated projects under this part.

(b) The plan must provide for proper and efficient state administration (including state leadership activities and consultive services), and for planning on the state and local level.

(c) The plan must provide satisfactory assurance that the control of funds provided under this part, and title to property derived therefrom, shall be in a public agency for the uses and purposes provided in this part, and that a public agency will administer such funds and property.

(d) The plan must set forth policies and procedures which provide satisfactory assurance that Federal funds made available under this part will be so used as to supplement and, to the extent practical, increase the level of State, local, and private funds expended for the education of gifted and talented children and youth, and in no case supplant such State, local, and private funds.

(e) The plan must provide that effective procedures, including provision for appropriate objective measurements of educational achievement, will be adopted for evaluating at least annually the effectiveness of the programs in meeting the special educational needs of and providing related services for, gifted and talented children.

(f) The plan must provide that the State educational agency will be the sole agency for administering or supervising the administration of the plan.

(g) The plan must provide for making such reports, in such form and containing such information, as the Commissioner may reasonably require to carry out his functions under this part, including reports of the objective measurements required by paragraph (e) of this subsection;

and the plan must also provide for keeping such records and for affording such access thereto as the Commissioner may find necessary to assure the correctness and verification of such reports.

(h) The plan must provide satisfactory assurance that such fiscal control and fund accounting procedures will be adopted as may be necessary to assure proper disbursement of, and accounting for, Federal funds paid under this part to the State, including any such funds paid by the State to local educational agencies.

(i) The plan must provide satisfactory assurance that effective procedures will be adopted for acquiring and disseminating to teachers and administrators of gifted and talented children and youth significant information derived from educational research, demonstration and similar projects, and for adopting, where appropriate, promising educational practices developed through such projects.

(j) The plan must provide satisfactory assurance that, to the extent consistent with the number and location of gifted and talented children and youth in the State who are enrolled in private elementary and secondary schools, provision will be made for participation of such children in programs or carried out under this part.

SPECIAL PROJECT GRANTS

1. Fifteen per centum of the sums appropriated pursuant to section 301 for each fiscal year shall be used by the Commissioner to make grants to public, private, or private non-profit agencies or organizations for the establishment and operation of model projects for identification of potentially gifted and talented children and youth, career education, development of community resources, and special programs for disadvantaged, bilingual and handicapped children and youth.

TRAINING OF PERSONNEL

1. The Commissioner of Education is authorized to make grants to State educational agencies to assist them in establishing and maintaining, directly or through grants to public or other nonprofit institutions of higher learning, a program for training personnel engaged or preparing to engage in educating gifted and talented children and youth or as supervisors of such personnel.

2. The Commissioner of Education is authorized to make grants to public or other nonprofit institutions of higher learning and other appropriate nonprofit institutions or agencies to provide training to leadership personnel for the education of gifted and talented children and youth. Such leadership personnel may include, but is not limited to, teacher trainers, school administrators, supervisors, researchers, and state consultants.

3. There is authorized to be appropriated for the fiscal year ending June 30, 1973, $15,000,000 for the fiscal year ending June 30, 1974, $20,000,000 and each succeeding year seventy-five percent of the annual appropriation for the Part shall be expended for section 401.

RESEARCH AND DEVELOPMENT PACKAGES

1. The Commissioner is authorized to make grants to States, state or local educational agencies, public and nonprofit private institutions of higher learning and other public or nonprofit private educational or research agencies, and to make contracts with States, State or local educational agencies, public and private institutions of higher learning and other public or private educational or research agencies and organizations, for research and related purposes (as defined in this section) and to conduct research, surveys, or demonstrations, relating to education of gifted and

talented children and youth. Payments pursuant to grants or contracts under reimbursement, and on such conditions as the Commissioner of Education may determine.

2. The Commissioner of Education shall also from time to time appoint panels of experts who are competent to evaluate various types of research or demonstration projects under this section, and shall secure the advice and recommendations of such a panel before making any such grant in the field in which such experts are competent.

3. As used in this section, the term "research and related purposes" means research, research training, surveys, or demonstrations in the field of education of gifted and talented children and youth, or the dissemination of information derived therefrom, or all of such activities, including (but without limitation) experimental and model schools.

4. There is authorized to be appropriated for the fiscal year ending June 30, 1973, $14,000,000 and for the fiscal year ending June 30, 1974, $16,000,000.

Some of you have heard one of my previous presentations relative to millions of words being written on talent loss, but too few dollars being committed to combat this loss. Let me say that we intend to marry fiscal responsibility to the glowing rhetoric. We as professional educators and lay publics cannot afford to stand still on the razor's edge of change and wait for others to thrust this area of special education for us.

We in the education of the gifted and talented have many times used inflated rhetoric in describing our accomplishments, when in reality they may have been severely limited. I have complete hopes that a new era for the gifted and talented can be prescribed and created. At the core of this hope is a fresh awareness of gifted and talented children and youth; of their intrinsic

rather than instrumental value, of their ability to think and of the kind of thinking they could do as we look into the future.

The Federal role should imply with certainty that the central theme should be the struggle to assert truly human values and to achieve their ascendancy in a mass, technological society. We must ask first then, not what kind of education we want to provide for the gifted and talented; but what kind of human being we want to emerge one with:

... a strong sense of self

... an awareness of his thoughts and feelings

... a capacity to feel and express love and joy

... a capacity to recognize tragedy and feel grief

... a strong sense of his own worth

... an ability to relate openly with others

... an ability to respect diversity and differences

... a capacity for lifelong intellectual growth

This type of education for the gifted and talented human being is an enabling process rather than an instructional process. It requires opening the whole world to the learner and giving him access to this world.

When we look at education of the gifted and talented in the near and distant future, we must imply learning and thinking not as a means to some end but as an end in itself. This type of education will not be an initiation of life, but life examined and enjoyed - a set age for beginning to have - or ceasing to think - will be meaningless. So will age as a criterion for determining what needs to be learned.

The next step toward moving in a positive direction for the future is a moral committment backed by resources and action. I urge you to sound a special call for full and genuine committment to the right to learn for the gifted and

talented. The signal that we have accepted such a committment will by the long-awaited infusion of large-scale federal funds into the education of the gifted and talented.

For a time, at least, we must infuse these funds as though we are at war; with ignorance of what we are about, injustice, intolerance and all those forces crippling and restricting the future leaders of this land, we must wage this war to bring about a future for these children and youth better than the one of which this generation can ever dream.

The infusion of federal support in the future implies that recognition has been given to the right to learn for such children and youth; it means the freedom to learn what he needs, in his own style, at his own rate, in his own place and time. This interpretation will not be easily understood. Nor are we likely to come easily to full acceptance of the education of the gifted and talented. I urge you as lay and professional publics with high interest in this area of education, to work toward public understanding and support of what our needs and goals are for such children and youth. Consider it a daily task, a weekly encounter and a yearly challenge until we have reached the ultimate ... developing each of these children and youth to his or her own maximum potential. Technologically, we have faced diversity and conquered it - let's now take a major step to wipe out the denial of diversity that exists in America today - especially for our gifted and talented children and youth. Thank you.

WGV/pjd
February 1972

Let's Give Creativity a Chance!*

by Helen Talle Koteen

In this research project I have developed a composite measure of artistic creativity. There are no tests today which measure students' artistic ability, and as an art educator I feel the need and am deeply interested in developing such a test. This measure can be applied to all children, not only those who evidence interest and ability in art, for such a test as I am proposing will help to give educators in general, not just art educators, an insight into the whole personality of the child. It will also be a good instrument for psychologists in their understanding of the child.

The work that I'm reporting now is based on data collected by Dr. Anita Solomon** for 5th grade children from six schools in the District of Columbia. There were 215 students, 108 low socio-economic , 107 high socio-economic; 108 boys, 107 girls. I used only Activity I of the Torrance Test of Creative Thinking, Figural Test A, rescoring it into two main categories, originality and technique.

* Address before the 50th International Convention of the Council for Exceptional Children, March, 1972.
** ERIC Documents, 1968, U.S.O.E. Research Grant.

I have had an opportunity to examine carefully Dr. Solomon's extensive data, and, in doing so, was concerned with the scoring procedures on Torrance's tests, especially on Torrance's originality scale, for I felt that his scoring did not do full justice to children with artistic creativity. In Activity I of the test, Torrance measures originality by looking at the colored, egg-shaped piece of paper that the child has been asked to place on his paper and use as a basis for a drawing, trying to think of something no one else would. The child is scored for originality on this task, the score being entirely dependent upon the object the green shape was to represent. If the shape were used as an egg or as a man, it automatically received a zero score on originality because, in the standardization of his test, Torrance found that 5% or more of the responses were concerned with eggs or men; these were the common responses. However, I believed that the total use of the form should be considered so that an unusual use of an egg could be a highly creative and original response to the test item depending upon its context. Torrance deals with specifics; I am dealing with the total picture and the way the shape fits into the whole. For example, in this drawing the green shape is an egg, yet I believe that this was used in an imaginative way. In this picture, it looks as if the egg is about to be beaten by the blades of the helicopter into the arms of the people waiting below or perhaps into what may be a giant frying pan around which the people are gathered.

If you take two children presenting the same subject matter, Torrance does not differentiate between one using a highly imaginative use of the green oval-shaped form as an egg or one using the shape as a plain egg . Or, if the child has drawn a head, it is doomed to a low score, however original it may be. I questioned whether this was a realistic situation.

I am trying to develop a score which will remedy this problem. A judgment of art is a subjective judgment; it is in real life. A person does not try to measure a great painting by any method other than a subjective one, so why try to measure children's art by a completely non-subjective test? This, it seems to me, is unrealistic. For if you look at two paintings, you will see a difference between them. But I asked myself, is it possible to devise a score which is not completely involved with the green shape as the sole criteria but takes into account the whole drawing from an artistic point of view? Any such approach was bound to be subjective to a certain extent. Judging a drawing by a combination of an objective and a subjective measurement would be the ideal, and this is what I have done. Knowing that and such approach, i. e., adding a subjective measure would be open to criticism, I decided to test its reliability and validity.

I combined the two measures. I accepted Torrance's scale to some extent to have the objectivity it represents but complemented his scale by my own with subjective components properly controlled. I believe the resultant score is more realistic than Torrance's score without losing it objectivity and is a distinct improvement on Torrance.

Because mine is a subjective judgment, I have used three judges, each of them professional artists and art educators, and only one of them familiar with, but not influenced by, Torrance's test. To score they were asked to give a judgment on a scale of 0-5 as to the originality of the child's response in his drawing using the green shape. Originality was defined as treatment that indicated an unusual interpretation of the child's world, an unusual treatment of a subject, or an unusual emphasis in the presentation of ideas or feelings. This was done for Activity I, using the fifth grade data collected by Dr. Solomon. There was a high degree of correlation between the judges' scores, significant at the 0.001 level.

CORRELATION BETWEEN THREE ARTIST-JUDGES ON TALLE-KOTEEN COMPOSITE SCALE OF ORIGINALITY

	JUDGE 2	JUDGE 3
JUDGE 1	.9004***	.8760***
JUDGE 2		.8372***

***Significant at the 0.001 level.

Since the correlation is so high, it can be assumed that such a test would be reliable, and I feel that perhaps a sum of the three judges' scores would be fairer and perhaps form one component of the new test score that I am designing. To test for the validity of this score I used Torrance's test again and discovered a high correlation between my judges and Torrance, significant at the 0.001 level.

CORRELATION BETWEEN THREE ARTIST-JUDGES AND TORRANCE ON SCALE OF ORIGINALITY

	JUDGE 1	JUDGE 2	JUDGE 3
TORRANCE	.8965***	.8465***	.8486***

***Significant at the 0.001 level.

This is very fascinating because the two approaches are entirely different: one is statistical and the other is artistic. But the close agreement proves the validity of both and further indicates that the combination of Torrance's score and the score obtained by the judges should be the ideal measure of artistic originality that I am looking for. Therefore, the originality score is a total score derived from the sum of Torrance and the three judges. The total originality score is now on a scale of 0-20, with a mean of 11.4931 and a standard deviation of 7.1050.

However, originality is not all of creativity that there is to be judged in a painting. Craftsmanship is equally important. A good painting is perhaps one half originality and one half craftsmanship. But what is craftsmanship? It seems reasonable to assume that it deals with technique, the way in which an idea is drawn or painted, how the child indicates form, texture. It seems that there are four components that are reasonable to give us a good indication of the child's technique: form, composition, space, and elaboration. These components testify as to the way the child observes his world and translates that observation into a creative and artistic experience. Form is taken to be the evolution of a contour to delineate an object and to indicate the perspective or depth and distance of an object. Composition is considered the pleasing

arrangements of elements in space, the organization of the elements into a whole. Space is considered to be the use of positive and negative areas in the total composition, the plane which forms the surface for the artist's world; it is concerned with the visual pattern or image that evolves. It is interesting to observe the child's use of space. Most of the students taking the Torrance Test of Creative Thinking upon which this study is based confined themselves to the 8 1/2" x 11" page, but a few used two pages (adjoining) or part of the adjoining page as part of their plane.

The components of form, composition, and space were scored by the same three judges on a 0-5 scale (as in the case of originality) and a correlation run on their results. Once again the correlations were significant at the 0.001 level, but they were not as high as those observed in the case of originality. However, when the three components were combined, the correlation became higher, indicating that there was some cancellation involved and that the total figure obtained from the judges' scores was more reliable than each of the individual scores.

TALLE-KOTEEN COMPOSITE SCALE OF CREATIVI TY
CORRELATION BETWEEN THREE JUDGES

	FORM		COMPOSITION		SPACE	
	JUDGE 2	JUDGE 3	JUDGE 2	JUDGE 3	JUDGE 2	JUDGE 3
JUDGE 1	.7580***	.7020***	.7561***	.7057***	.7601***	.7381***
JUDGE 2		.7566***		.7502***		.7185***

***Significant at the 0.001 level.

TOTAL OF FORM, COMPOSITION AND SPACE

	JUDGE 2	JUDGE 3
JUDGE 1	.8812***	.8938***
JUDGE 2		.8470***

***Significant at the 0.001 level.

If you look at the figures in the following table, you will see that one judge is consistently higher in mean than the others and consistently lower in standard deviation. This might introduce a little bias in the scores, but when I standardize my scores this will be corrected.

INDIVIDUAL JUDGE DATA ON TALLE-KOTEEN COMPOSITE SCALE OF CREATIVITY

ACTIVITY	JUDGE	MEAN	STANDARD DEVIATION
ORIGINALITY	1	2.9907	1.8745
	2	3.3814	1.6273
	3	2.6512	1.7993
FORM	1	1.9581	1.3406
	2	2.1628	1.2253
	3	1.8558	1.2200
COMPOSITION	1	1.9116	1.5638
	2	2.8744	1.3699
	3	2.7256	1.4895
SPACE	1	3.0000	1.5856
	2	2.6419	1.3764
	3	2.1023	1.4973
TOTAL, FCS	1	6.8698	3.5889
	2	7.6791	3.3897
	3	6.6837	3.6085

N = 215

Elaboration, the amount of detail, is also a component of technique, and for this it seems reasonable to accept Torrance's score, rescored on a 0 - 5 scale. This is the objective measure complementing the subjective. Just as I used Torrance's originality to balance the subjective measurement of the judges for a total originality score, now I decided to use Torrance's elaboration to balance the judges' subjective technique score. So basically the composition is the same in both cases of originality and technique: three subjective judgments and one objective judgment being the components of each, and each on a 0 - 20 scale for a total 0 - 40 scale of artistic creativity. The mean of the derived score for the total population was 19.746, with a standard deviation of 9.239 and a variance of 85.361. The scores were broken down into socio-economic groups, with the low having a mean of 16.370 and a standard deviation of 8.818 and the high, a mean of 23.153 and a standard deviation of 8.397. The variance for the high socio-economic was 70.515 and 77.758 for the low socio-economic.

SUBTEST DATA ON TALLE-KOTEEN COMPOSITE SCALE OF CREATIVITY

ACTIVITY	MEAN	STANDARD DEVIATION	VARIANCE
ORIGINALITY	11.493	7.105	50.485
FORM	1.992	1.147	1.315
COMPOSITION	2.504	1.339	1.792
SPACE	2.581	1.351	1.826
TOTAL TECHNIQUE	7.715	3.885	15.090

We are interested in a measurement of artistic creativity that will add to our total knowledge of each child, whether advantaged or disadvanted. In our educational system there is great emphasis given to IQ, no matter how much such a point is disclaimed. Equal importance should be given to a child's creativity. It is my feeling that my composite score of artistic creativity is a fuller measure, a more comprehensive measure than Torrance derives on his scale. It is important for educators to get the best possible picture of the total child, because as Eisner puts it, it is the individual child and not the statistical abstraction that the teacher faces. Society should give creativity every chance.

TALLE-KOTEEN COMPOSITE SCALE OF CREATIVITY
(ORIGINALITY AND TECHNIQUE)
(0 - 40)

ORIGINALITY (average) (0 - 20)	Torrance: uncommonness of response (statistical)
	Talle-Koteen: subjective judgment
ARTIST'S TECHNIQUE (0 - 20)	F Form: contour and perspective
	C Composition: organization of elements in space
	S Space: use of positive and negative areas
	E Elaboration: Torrance (amount of detail)

An Empirical Study of Cognitive Style and Creative Problem Solving

by
T. Jerome Rookey
and
Leon Hyer

Perhaps the most persistent problem in creativity research has been the need to place creativity within the total perspective of the learning situation. One facet of this is the need to reduce the global consideration to more minor and manipulable relationships.

It is reasonable to view the creative process as a problem-solving process. As Northrop (1952) noted the creative process results from one being disturbed by a problematic situation. The creative process is distinct from convergent thinking. As Egan (1969) stated, "...convergent thinking is concerned with narrowing down the possibilities in the problem" or, as McGuire (1968) said, "...convergent thinking is the ability to give the appropriate response." Creative thinking does not follow prescribed paths to prescribed answers. To quote Cackowski (1969), "...creative thinking process, then, will have to be that thinking process which confronts a creative problem and succeeds in finding a solution without being supplied in advance with any algorithmical regulations." Cackowski further pursues, "The most important feature of any creative problem-solving process consists of breaking previous patterns of thinking."

The relatively consistent relationship of cognitive styles to problem solving is a challenging area in need of clarification. In recent years the notion of cognitive style has enjoyed considerable popularity largely because it promised an avenue for understanding how personality factors can influence perceiving, learning, thinking, and remembering. As such, cognitive styles are best represented as interacting dispositions within a person. These dispositions are a kind of bridge between personality and perceptual-cognitive variables. Accordingly, they affect the internal balance necessary for good quality on a problem-solving task.

In recent years three cognitive styles have generated interest. These are response tempo, response style, and response ambiguity. Each has demonstrated a relationship to certain types of problem-solving. That is, the quality of the response depended largely on the type of cognitive style or strategy employed. Presumably this has consistently indicated that one or more of these cognitive styles accounted for those conditions within a problem solver necessary for success or failure. The main problem of this investigation, therefore, is to study the relationship of these cognitive styles to problem solving.

Response tempo was defined as the tendency to display slow or fast reaction times in problem situations with high response uncertainty. Essentially, response tempo is the predilection toward reflection or impulsivity. The scope of it is defined as a reflection-impulsivity dimension. In a sense a person develops a stable pattern or attitude toward problem solving and tends to utilize this as a problem-solving strategy. This cognitive style is especially

influential in problems with alternative routes to solutions. Reflection upon the probable validity of varied solution sequences is critical for the ease with which success is achieved. The student who does not reflect on the differential validity of several solution possibilities is apt to offer the first idea that occurs to him.

The second cognitive style, response style, represents the stylistic tendency to use the extreme or moderate response categories on an intensity dimension. Those who possess the personal disposition to consistently respond in the extreme are said to have an extreme response style (ERS). Similar to impulsivity, this is an inappropriate response to stimuli in problem-solving tasks.

The third variable, response ambiguity, represents the tendency to be tolerant or intolerant of ambiguous stimuli. It is defined as a tolerance-intolerance of ambiguity dimension. This cognitive style is the construct of Frenkel-Brunswik (Adorno et. al., 1950). It was considered one of the basic variables of both an emotional and cognitive orientation of an individual towards life. Accordingly, it has a determining influence on many types of problem solving. Intolerance of ambiguity represents an excessive maintenance on a cognitive organization that yields biased or lowered scores. Necessary ingredients include a tendency to premature closure, a need to structure the environment even at the expense of neglecting reality, a tendency to precipitate early perceptual judgment, a propensity to think in rigid categories, and a frequent use of dichotomies.

Two of the cognitive styles of concern in the study, response ambiguity and response tempo, have been directly related to creative problem solving. Frenkel-Brunswik (1949) early linked tolerance of ambiguity with an openness in the cognitive, emotional, and social areas. Essentially, this was the capacity of existing amidst a state of affairs in which one does not comprehend all that is going on, but continues to affect resolutions despite the present lack of homestasis. This has received later support by Torrance (1962), Fleming and Weintraub (1962), and Stern (1967).

The relationship of response tempo with creative problem solving has been more equivocal than that of response ambiguity. Barron (1953, 1955, 1963a, 1963b) and Guilford (Christensen et. al., 1957) using different scales found both tolerance of ambiguity and impulsivity related to creativity. In contrast, a further series of studies have demonstrated support only for tolerance of ambiguity. Long and Henderson (1964) using the Torrance test battery found that the more reflective style relating to tolerating ambiguity, of withholding opinions when information is lacking, and resisting premature closure is indicative of creative problem solving. Additional support for this has come from studies using projective tests (Weisberg and Springer, 1961), open-ended questionnaires (Torrance and Dauw, 1965), as well as summary articles (Golann, 1963).

There is a readily apparent need for clarification of the relationship of creativity to the three cognitive styles. The cognitive styles of response ambiguity and response tempo have in one way or another been related to creativity. While response style has received little or no empirical concern, it appears to have at least a conceptual relationship. Therefore, this study attempted to ascertain the degree to which each contributes to creative problem solving.

The sample consisted of 288 grade 7 and 8 junior high school students. There were 145 girls and 143 boys ranging in age from 131 months to 190 months. The means of the intelligence quotients, based on the Otis-Lennon Mental Ability Test were 107.9 and 102.2 respectively. The students were mostly from rural, middle-class families.

To assess response tempo, the Sutton-Smith, Rosenberg Impulsivity Scale for children as modified by Hirschfield was used. For response style, the Perceptual Reaction Test was employed. The Modified Revised California Inventory was employed to measure response ambiguity.

To assess student creativity, two measures were employed. The Minnesota Tests of Creative Thinking (MTCT), Verbal Form A and the Pennsylvania Assessment of Creative Tendency (PACT), Form 39 were used. The MTCT attempts to assess the products of creative thinking in terms of Guilford's divergent thinking factors (fluency, flexibility, originality, and elaboration). PACT is a measure of the student's tendency to respond creatively to problematic events. The MTCT was scored for fluency, flexibility, and originality as well as a composite score calculated according to the method suggested by Torrance (1966).

A matrix of zero-order correlation coefficients composed of intelligence (IQ), response ambiguity (RA), response tempo (RT), response style (RS), PACT and the MTCT is given in Table I. Upon inspection of this table it can be seen that response ambiguity related significantly to both creativity measures. Response tempo related significantly but negatively to PACT and not at all to the MTCT. Response style did not relate significantly to either measure of creativity.

It is worth noting that intelligence related to both measures of creativity at about the same level.

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insert Table I

As can be seen in Table I, the correlation among the three components of the MTCT is rather high which raises theoretical concern. The high correlation contraindicated the central rationale of creativity as held by Torrance; that these components are relatively distinct, representing "miniature models" of the total creative act (Torrance, 1966).

A series of multiple regression analyses were calculated with creativity measures as the dependent variable(s). The multiple R for the MTCT range from .280 (fluency) to .344 (flexibility). The multiple R for PACT was .461. The results are given in Table II.

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insert Table II

An inspection of Table II reveals that, while in all of the criterion variables, fluency (5), flexibility (6), originality (7), and creative problem solving (8), the proportion of variance explained (R^2) fluctuates, the predictor variables explain only a small portion of the total variance of creativity (e.g., less than 12 per cent - ,1146 - is explained for creative problem solving). The variance of PACT (9), the experimental test, is more substantially explained, 21 per cent. It appears on the basis of the previous research that this amount of explained variance of the MTCT is not unusual. Few variables substantially contribute to creativity.

A further inspection of Table II reveals the Beta weights for each of the predictor variables. It is evident that response ambiguity accounts for the majority of the explained variance with response tempo minimally contributing and response style ineffective. On the basis of the previous research these results are comprehensible, since response ambiguity has consistently weighted on creativity, response tempo sporadically, and response style appears devoid of any relationship.

The results of the F test showing that predictor combination not significantly different than any higher order predictor combination are given in Table III. From these more "refined" combinations it becomes evident that response ambiguity is again the best predictor. The higher weighting of this variable on flexibility (.3621), originality, and creative problem solving (.3573) than on fluency (.2873) seem to be due to this cognitive style's emphasis on response merit as opposed to quantity. Response ambiguity apparently is more highly associated with response quality.

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insert Table III

As a result of the significant correlations of IQ to creativity reported in Table I, multiple regression analyses incorporating intelligence were performed. In Table IV, the values of R, R^2, and the beta weights are reported. The F ratio compares two regression equations to discover if the longer equation explains a significantly greater amount of variance of the dependent variable.

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insert Table IV

As can be seen, not only is there more variance being explained (R^2) by the addition of intelligence over the previous hypothesis, where it was not a competing variable, but its relative influence (beta weight) on the various forms of creativity is rather substantial.

The key question of this hypothesis is whether the cognitive styles add significantly to the contribution of intelligence or are of practical value. Table V gives the results of whether the inclusion of the cognitive styles in the regression equation tends to reduce the error of estimate significantly leading

to an increase in R. Using creativity in all its forms as the criterion variable, there is significance in each case. But the differences between the two equations are small. This appears due to the somewhat unexpected influence of intelligence resulting in the lessened contributions of the cognitive styles.

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insert Table V

It seems that the most fruitful approach in obtaining information about these two constructs, cognitive styles and intelligence, is to view their proportional contributions when only the best set of predictor variables is considered. In this case intelligence and response ambiguity each contribute to the explained variance of creative problem solving and its components, with IQ being more influential on those creativity components emphasizing response quality, particularly originality (7). It is important to note that response ambiguity does substantially account for the variance of PACT. The results are given in Table VI.

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insert Table VI

Intelligence and the cognitive styles appear to contribute equally to the explained variance of creativity. The cognitive styles of response ambiguity, in particular, and response tempo significantly contribute to creative problem solving and its components independent of intelligence. When intelligence is introduced, this, along with response ambiguity, explain most of the variance, with IQ more heavily weighted on the quality response items. Response ambiguity in both cases appears to be a good predictor of PACT. In this study creativity is about equally affected by intelligence and the cognitive styles. At the least, the relationship of the cognitive styles to creativity seems to possess theoretical merit.

It should be noted that these results support the previous research findings of Wallach and Kogan (1965), among others. That is, on the basis of the present findings it is evident that verbal creativity fails to assess a unified domain of cognitive functioning that is wholly distinct from intelligence. Much variance, however, is unexplained.

Table I

Product Moment Correlation Coefficients Among Variables

	2	3	4	5	6	7	8	9
1. IQ	.534*	-.204*	-.225*	.230*	.362*	.381*	.355*	.360*
2. RA		-.323*	-.212*	.247*	.321*	.295*	.316*	.448*
3. RT			.158*	.032	.010	-.015	.011	-.216*
4. RS				.017	-.090	-.020	-.037	-.017
5. FLUENCY					.741*	.829*	.930*	.218*
6. FLEXIBILITY						.702*	.905*	.212*
7. ORIGINALITY							.910*	.287*
8. MTCT COMPOSITE								.259*
9. PACT								

* Significant beyond .01 level

Table II

Multiple R, R^2 and Beta Weights of the Cognitive Styles for Creativity

Combination	Multiple R and R^2		Beta Weights		
	R	R^2	RA(2)	RT(3)	RS(4)
$R_{5.234}$	.280	.078	.2984	.1192	.0616
$R_{6.234}$	.344	.118	.3558	.1311	.0351
$R_{7.234}$	.309	.095	.3315	.0862	.0314
$R_{8.234}$	.339	.115	.3608	.1245	.0194
$R_{9.234}$	.461	.212	.4301	-.0953	.0678

NOTE: Variables 5 (fluency), 6 (flexibility), 7 (originality), 8 (creative problem solving), and 9 (PACT), are creativity factors and not related to MTCT composite.

Table III

F Value, Multiple R, R^2, and Beta Weights for the Best Combination of Cognitive Styles for Creativity

Best Combination	F Value	R	R^2	Beta Weights RA(2)	Beta Weights RT(3)
$R_{5.23}$	4.33*	.274**	.075	.2873**	.1254
$R_{6.23}$	4.70*	.342**	.117	.3621**	.1276
$R_{7.2}$	27.34**	.295**	.087		
$R_{8.23}$	4.6*	.338**	.114	.3573**	.1264
$R_{9.2}$	65.32**	.448**	.201		

* Significant beyond .05 level
** Significant beyond .01 level

Table IV

Multiple R, R^2, and Beta Weights of the Cgonitive Styles and Intelligence for Creativity

Combination	Multiple R and R^2		Beta Weights			
	R	R^2	IQ(1)	RA(2)	RT(3)	RS(4)
$R_{5.1234}$	.309	.095	.1546	.2207	.1229	.0793
$R_{6.1234}$	.413	.170	.2727	.2195	.1372	
$R_{7.1234}$	.414	.171	.3283	.1665	.0940	.0747
$R_{8.1234}$	.409	.167	.2742	.2229	.1242	.0508
$R_{9.1234}$	.489	.239	.1907	.3421	-.0876	.087[illegible]

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Table V

Multiple Correlation Coefficients of Intelligence and Intelligence Plus Cognitive Styles in Predicting Creativity

Criterion	Intelligence	Intelligence Plus Cognitive Styles	F Value
Fluency (5)	.230	.309	4.41**
Flexibility (6)	.362	.413	4.49**
Originality (7)	.381	.414	2.97*
MUCT Composite (8)	.355	.409	4.67**
PACT (9)	.360	.489	13.60**

Table VI

F Value, Multiple R, R^2, and Beta Weights for Best Combination of Cognitive Style and Intelligence for Creativity

Best Combination	F Value	R	R^2	IQ(1)	RA(2)	RT(3)
$R_{5.123}$	4.53*	.299	.089	.1426	.2127**	.1304
$R_{6.123}$	5.75*	.413	.170	.2727**	.2195**	.1372*
$R_{7.12}$	3.99*	.396	.157	.3124**	.1286	
$R_{8.123}$	5.60*	.406	.165	.2666**	.2178**	.1358
$R_{9.12}$	8.62**	.476	.226	.1842**	.3577**	

* Significant beyond .05 level
** Significant beyond .01 level

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IDENTIFYING CREATIVITY IN WRITERS

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Study Objective

This paper compares two different approaches to the study of creativity: first, the cognitive-factor approach, which emphasizes the intellectual aspects of creativity; second, a personality approach that stresses the importance of attitudes, interests, and values of the creative individual. The objective is to determine which approach provides a better basis for identifying persons with high creative potential. Creativity in writing has been selected as the specific area for study.

The Cognitive-Factor Approach

The cognitive-factor approach to creativity, developed by J. P. Guilford at the University of Southern California, is based on a conceptual model of human intelligence known as "the structure of intellect." Guilford characterizes his model as a "unified theory of human intellect, which organizes the known, unique or primary abilities into a single system" (Guilford, 1959, p. 219). According to the model, intelligence is not a one-dimensional quantity, but a composite of many distinct cognitive abilities. Among these Guilford (1967a) has designated two categories of abilities, "divergent production" (DP) and "transformation" abilities, as most relevant for creative thinking. As defined by Guilford,

> Divergent production abilities pertain to generation of ideas, as in solving a problem, where variety is important. Some divergent production abilities have been characterized as kinds of fluency, some as kinds of flexibility, and others as elaboration abilities. . . . The transformation abilities pertain to revising what one experiences or knows, thereby producing new forms and patterns. Readiness to be flexible is a general characteristic of this group of talents, where flexibility leads to reinterpretation and reorganization (Guilford, 1967a, p. 8).

Building on the "structure of intellect" model, Guilford has devised a battery of simple open-ended tests to measure divergent production and transformation abilities. He and others have attempted to use these tests to identify different types of creative performance. Several other researchers, notably Getzels-Jackson and Torrance, have also developed creativity tests along the same lines.

A number of studies have been conducted on the ability of these tests to identify creative individuals, or to discriminate among individuals who have exhibited different degrees of creative performance, in a variety of fields. The tests have been used to determine the creative potential of advertising and public relations men (Elliott, 1964), young creative people (Miller, 1962), saleswomen, scientists, Air Force captains, and governmental administrators (Guilford, 1967b, pp. 162-166). Generally speaking, the results range from poor to moderate in terms of correlations between test scores and external measures of creative performance.

The Personality Approach

In contrast to Guilford's cognitive-factor approach, which postulates that creativity is in the realm of the intellect, another point of view, which we call the personality approach, sees creativity as part of a larger realm. Callaway (1968) stresses the difference between these approaches by referring to the cognitive-factor approach as "atomistic" and the personality approach as "holistic." Following Allport, he notes that the total personality is composed of cognition, conation, and affection. Whereas Guilford singles out cognition as the relevant factor, Callaway believes that creative behavior

always involves an integration of all three and that"an adequate conception of creativity cannot be articulated without discerning in what manner the cognitive, the affective, and the conative unite in producing the creative act" (Callaway, 1968, p. 70). Researchers who view creativity from this perspective seek to learn about a broad spectrum of personality traits of creative people, and to use that knowledge as a basis for identifying observable concomitants of creative ability.

Findings on the personalities of highly creative people have been derived from three sources: biographical studies of highly creative people (Lowes, and Goertzel and Goertzel); investigations of the nature of creativity and the creative process (Koestler, Rugg, and Ghiselin); and empirical studies of highly creative persons in specific fields (Barron, Roe, and MacKinnon). The biographical studies and investigations have suggested lines of inquiry about the nature of the personalities of highly creative adults which could be tested in a more formal way. It was not, however, until the 1950's when the Institute of Personality, Assessment and Research was established at Berkeley that groups of highly creative adults were systematically studied.

Groups of architects, authors, scientists, and mathematicians were invited to the Institute for weekend sessions where they were interviewed and given several different types of personality tests. The interviews and tests showed that highly creative men in a given profession tend to have similar attitudes, interests and values, and that their characteristics are different from those of the less creative in the same profession. For example, in MacKinnon's study of architects the more creative architects

> . . . more often stress their inventiveness; independence, and individuality, their enthusiasm, determination, and industry. Less creative architects are more often impressed by their virtue and good character and by their rationality and sympathetic concern for others (MacKinnon, 1964, p. 267).

Other researchers who are not affiliated with the Institute have pursued similar approaches to the study of creativity. For example, Anne Roe, a clinical psychologist, conducted a four-year study in which she explored the personalities and family backgrounds of biologists, physicists and social scientists (Roe, 1952). Her findings indicate that men in the same profession not only tend to have similar personalities but also similar family backgrounds.

Barron and MacKinnon in their studies used various personality tests to discover traits of creative architects (MacKinnon, 1964), mathematicians (Barron, 1969), writers (Barron, 1963, 1968, 1969), and scientists (Barron, 1969). The tests included the California Psychological Inventory, the Allport-Vernon-Lindzey Study of Values, the Myers-Briggs Type Indicator, and the Minnesota Multiphasic Personality Inventory. Certain scales of these personality tests were found to differentiate consistently between more creative and less creative individuals.

Issues in Identifying Creative Ability

Ultimately, the controversy between the cognitive and personality approaches to assessing creativity must be resolved empirically. Which tests, those derived from Guilford's structure of intellect or those designed to measure personal attributes, yield scores that correlate better with external evaluations (criterion measures) of creativity? The existing evidence, while tending to favor the personality view, is not sufficient to decide the question, and many issues remain in doubt.

The research findings thus far, however, seem to indicate that personality tests results are somewhat better indicators of creativity than the Guilford tests. Taylor and Holland (1962) say that personality tests have given us "a sizable number of traits relevant to creativity e.g., independence" (p. 97). Barron and MacKinnon (MacKinnon, 1964) believe that personality tests have been significant in defining a personality pattern of creative people. Among the personality tests, the California Psychological Inventory and the Allport-Vernon-Lindzey Study of Values have been particularly successful in differentiating between more creative and less creative people in many professions (Hall and MacKinnon, 1965).

In contrast to the personality tests, Guilford's creativity tests have been said to have only "modest success" and "the evidence for the validity of such tests is still incomplete and unclear" (Taylor and Holland, 1962). An assessment by MacKinnon is as follows:

> In recent years, Guilford's work on the structure of intellect and especially his identification, by means of factor analysis, of several dimensions of creative thinking, viz., adaptive flexibility, originality, sensitivity to problems, etc., has led to a widespread hope and expectation that his tests of creative ability would provide us with reliable means for the identification of creative persons. So far, however, this hope has not been realized.
>
> In an intensive study of research scientists in the Air Force, Guilford's tests of creativity failed to predict the criterion and in our own studies these same tests have likewise shown essentially zero correlation with the criterion. In view of such negative findings the use of Guilford's battery of creativity persons would be, to say the least, questionable (MacKinnon, 1967, p. 32).

There is evidence, however, that Guilford's tests may be suitable for identifying some types of creative ability. For example, in a study of advertising and public relations men in which some of Guilford's divergent production tests were used Elliott (1964) found that

these tests were successful in distinguishing between the more creative and less creative advertising men. But in other studies, such as Vera Miller's (1962) study of seventh grade students, the divergent production tests (Getzels and Jackson's tests patterned after Guilford's) in all cases did not significantly identify creative ability.

Creativity in Writing

The existing literature includes studies of the ability of the personality tests, but not the Guilford tests, to measure creative ability in adult writers.* Barron's study of writers (1963, 1968, 1969) suggests that in successful writers certain personality test scores are positively or negatively correlated with creativity. Evidence from creative writers' personal accounts** are consonnant with Barron's findings that certain personality traits and values are strongly related to the ability to write creatively. Among the traits that seem to be important are emotionality, sensitivity, perserverance, discipline, self-confidence, non-conformity, and independence. Appreciation for aesthetic and theoretical values and disinterest in economic values also seem important to creativity in writing. This evidence provides the basis for the hypotheses about relationships between measurable personality factors and ratings of creativity.

The ability of divergent production tests to ascertain creative writing potential has not as yet been determined. On a priori grounds, there seems to be reason to expect that the personality tests will

*Guilford's tests have been used with children in other studies of creative writing.

**See Arlene R. Barro's, A Comparison of Two Approaches to Identifying Creativity in Graduate Student Writers. Ph.D. dissertation, University of California at Los Angeles, 1971.

perform better than Guilford's divergent production tests in distinguishing between more creative and less creative adult writers. This expectancy is reflected in the hypotheses for the empirical part of this study.

Method

The subjects were 34 male graduate student writers working toward the Master of Fine Arts degree in playwriting or screenwriting. Two professors rated each subject on the creativity he had shown in his writing. For the purpose of this rating, creativity in writing was defined as a combination of originality and effectiveness. Originality was defined as novelty and uniqueness of idea; effectiveness means effectiveness in carrying out an original idea. Professors were asked to assign numerical ratings representing the creative writing ability of each subject in relation to all students in the professors' experience. The inter-rater reliability of the ratings obtained by this method was 0.52.

Each subject was individually tested with two personality tests, the California Psychological Inventory (CPI) and the Study of Values (Allport), and with a battery of Guilford's divergent production (DP) tests.

The following hypotheses were tested:

1. Writers' scores on certain personality scales will be positively correlated, and on certain other scales negatively correlated, with professors' creativity ratings.

2. Writers' scores on Guilford's tests of divergent production in the semantic content area will be positively correlated with professors' creativity ratings.

3. The multiple correlation between personality test scores and creativity ratings will be greater than the multiple correlation between divergent production test scores and creativity ratings.

Hypotheses I and II were tested by simple correlation and Hypothesis III by multiple correlation-regression analysis.

Results

Hypothesis I that writers' scores will be positively or negatively correlated with professors' creativity ratings was confirmed in the expected direction for seven CPI scales. The scales and the correlation coefficients are Self-acceptance, .33; Self-control, -.48; Good Impression, -.48; Sense of Well-being, -.35; Achievement via Conformance, -.36; Femininity, .31; and Tolerance, -.29. (Correlation coefficients of .306 or greater are significantly different from zero at the .05 level.) Scores on the remaining scales (Capacity for Status, Social Presence, Socialization, and Achievement via Independence of the CPI and Theoretical, Economic, and Aesthetic values of the Allport) were not correlated with the ratings. No scale operated in the opposite direction to that hypothesized.

Hypothesis II that writers' scores on the DP tests will be positively correlated with professors' creativity ratings was confirmed in the expected direction for three DP tests. Only one test, Alternate Uses, correlated with creativity ratings at the .05 level. Two others, Ideational Fluency and Consequences (scored for originality), were marginally significant ($p < .10$). One scale, Possible Jobs, was negatively correlated with the ratings, contrary to the hypothesis. The remaining tests (Associational Fluency, Expressional Fluency, Plot Titles-originality, Plot Titles-fluency and Consequences-fluency) showed no significant correlations.

Hypothesis III that the multiple correlation between personality

test scores and creativity ratings will be greater than the multiple correlation between divergent production test scores and creativity ratings was confirmed. The CPI scales for Self-acceptance, Sense of Well-being, Socialization, Good Impression, Achievement via Independence, and Femininity, and the Allport scales for Economic and Aesthetic values yielded a multiple correlation coefficient of .76 compared with .39 on the DP tests for Alternate Uses and Consequences-originality. Thus, the personality tests seem to be of substantially greater potential value than the divergent production tests as a basis for identifying creative ability in writers.

Discussion

The findings of this study indicate that the more creative writers are more non-conforming, independent, self-confident, persevering, emotional, egotistic and self-centered than the less creative writers. Even though there is no one-to-one correspondence between these characteristics and the personality scales, certain scales or combination of scales do serve as indicators of these traits. For example, the importance of non-conformity as a trait of the more creative writers is demonstrated by the negative association between rated creativity and Achievement via Conformance scores. Two other scales, Self-control and Good Impression, can also be interpreted as indicators of non-conformity, especially in the sense of freedom from ordinary social restraints. The relatively low scores of more creative writers on the former scale suggest that they tend to lack inhibition. Similarly, their low scores on the latter show that they are unconcerned with whether others approve of or react favorably to them (Gough, 1969, p.10).

Apart from the question of whether personality scales discriminate between the more creative and less creative writers, a great deal can be learned about characteristics of creative writers by comparing their test scores with results obtained in testing other groups. Both the CPI Manual and the Study of Values Manual report norms for a variety of occupational and social groups.

The CPI Manual provides norms for 20 samples of males in various categories ranging from practicing physicians and research scientists to prison inmates and high school disciplinary problems (Gough, 1969, p. 34). Compared to these groups the writers in this study showed a highly distinctive pattern. The most striking comparisons are the following:

--Two scales, Social Presence and Achievement via Independence, appear to rank the various norm groups in order of increasing intellectual status or accomplishment. On both the writers scored considerably above average, but not as high as the top-ranking groups, scientists and graduate students in scientific fields.

--On two other scales, Self-acceptance and Femininity, the less creative group of writers scored about average; the more creative writers scored higher than any of the reported norm groups.

--On Tolerance and Sense of Well-being, the less creative writers scored lower than most of the adult norm groups; the more creative writers scored lower than all but four socially deviant groups--psychiatric hospital patients, high school disciplinary problems, young delinquents, and prison inmates.

--Similarly, on Self-control, the less creative writers scored lower than most adults; the more creative writers had lower scores than

every reported group except high school disciplinary problems.

--The whole sample of writers averaged lower on the Socialization scale than any of the norm groups except the four socially deviant groups named above.

--Finally, on the Good Impression scale, the less creative writers scored lower than all but the disciplinary problems, delinquents, and prison inmates; the more creative writers demonstrated less tendency to create a good impression than any group tested.

Similar comparisons can be made with the Allport results using information from the Study of Values Manual on 18 sample groups representing the fields of engineering, business, medicine, education, personnel and guidance, art and design, and religion (Allport, Vernon, and Lindzey, 1960, p. 14). None of the three value scales, for which associations with rated creativity were hypothesized, proved to be significant. Nevertheless, on two of the three scales, Economic and Aesthetic values, the results were distinctive in comparison with the other groups. On Economic values, the writers scored lower as a group than all groups except theological students and clergymen. On Aesthetic values, their scores were more distinctive, being far higher than for any of the reported norm groups, and a full three standard deviations above the male mean. Thus, as on the CPI, the writers seem to have an unusual pattern of traits compared with other groups in the population.

To summarize, in addition to the distinctions between more and less creative writers shown by several CPI scales, much stronger differences between the whole group of writers and the general population are revealed by the CPI and Allport tests. In several instances, writers' personality

characteristics are well outside the range observed for other occupational groups and, in a few cases, even outside the range found for deviant groups. Therefore, the statistical results seem to support the proposition that there is a distinct cluster of personality traits associated with creative people.

Conclusions and Importance of the Study

Results of both the simple and multiple correlation analyses provide evidence for the view that personality characteristics, rather than cognitive abilities, hold the key to predicting creative potential in writers. An important qualification is that the results may reflect the shortcomings of the DP tests as much as the importance--or lack of it--of DP abilities.

The findings of this study are, in general, consonant with Barron's results on writers and with a number of studies on creativity in other professions. Therefore, this study can be viewed as one contribution to an integrated base of knowledge on what factors are important in creative behavior. As for practical application, the findings indicate those traits that should be fostered for the development of creative writing ability.

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THE EFFECT OF SUBJECT SPECIALISTS ON GIFTED CHILDREN AND THE SCHOOL PROGRAM*

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The final report of the Gifted Child Project consists of two parts: Part I, the text of the report; and Part II, the Technical Appendix. The first part contains the narrative account of the project, with condensed statistical tables supporting the analyses. Part II contains samples of all tests constructed by the project with the relevant psychometric data and all the source tables and information on which the report is based. This summary appears as Chapter IV in Part I of the report.

The purpose of this project was to evaluate the effects on gifted pupils and the school program of using specialist teachers in science, music, and French in a coordinated teaching situation. Coordinated teaching was defined as a plan where the regular classroom teacher remained in the room during the specialist's lesson, participated in the work, and coordinated her work in other curriculum areas with that of the specialist.

The concern of the study was to measure growth and changes in areas of major curriculum goals. Curriculum objectives include not only the acquisition of skills, understandings, knowledge, and the development of sound thinking, but also the development of appropriate interests and attitudes. They are concerned with stimulating pupils to engage in rewarding, worthwhile school and leisure-time activities. Teaching is also directed towards personal growth and a realistic but satisfactory degree of self-confidence and personal adjustment. This study attempted to measure these curriculum objectives: achievement, interests, attitudes, activities, and pupil self appraisal. Reactions of parents, teachers and principals were also considered.

The Programs

There were four basic programs:

Experimental Science (X-Science)
Experimental Music (X-Music)
Experimental French (X-French)
Regular Controls (RC-Controls)

There were, in addition, two control programs for the French analysis, which have been labeled the OS-Controls and the SC-Controls.

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*Experimental program approved under provisions of Article 73, Section 3602, Subdivision 14 of the New York State Education Law.

The Experimental Science pupils were taught science by a science specialist. The Experimental French pupils were taught French by a French specialist, and the Experimental Music pupils were those who were taught music by a music specialist. The Regular Control pupils were those in self-contained classrooms who were taught all subjects by their regular teachers. Thus, the data for the regular controls were compared with the data for each of the three experimental programs, and each experimental program served as a second type of control against the other specialist programs. The use of two experimental programs as a second set of controls for the third program afforded an opportunity to determine the possible existence of a halo effect in which the very presence of a specialist teacher, regardless of subject, might produce a favorable pupil response in a given area.

In order to make comparisons on French achievement and French-related topics, control schools had to be selected where French was taught. Two situations existed during the period of this study. There were classes where the regular classroom teacher taught her pupils French in a self contained setting. These have been designated as the SC-Controls. In the second, or Other Specialist plan, the pupils were taught by teachers within the school other than the regular classroom teacher. These have been designated as OS-Controls.

The Analyses

All analyses were made by grade level and by sex. Furthermore, whenever it seemed possible and appropriate, analyses were made in terms of intelligence level or initial scores in the appropriate area, such as achievement, attitude, or experience background in terms of private music lessons. Intelligence level scores were based on the Lorge-Thorndike Test, Verbal Form; initial scores for science achievement were based on the STEP, Form 4A; initial scores for attitude were based on Likert-type attitude scales developed on the project; and data on experience background (private music lessons) were obtained in the area of music from test booklets and questionnaires.

The Specialist Teachers

There was one teacher specialist for science and there were two for French and three for music. The first French specialist taught the classes for one and one-half years, when she was succeeded by the second teacher. In music, the first specialist taught for approximately one year, the second for the first half of the second year, and the third, for the last half of the second year.

The Sample

There were four schools and nine classes in the X-Science Program, four schools and ~~nine~~ ten classes in the X-French Program, and two schools and six classes in the X-Music Program.

There were five schools and ten classes in the Regular Control Program, five schools and seven classes in the OS-Control Program, and seven schools and nine classes in the SC-Control Program.

Only data for pupils who were in the experimental and control programs continuously for two years were considered in the statistical analyses.

The records of 1062 two-year pupils were retained in the major experiment, although almost 1400 participated altogether. There were 295 pupils in the X-Science Program, 309 in the X-Music Program, 170 in the X-French Program, and 288 pupils in the Regular Control Program. An additional group of controls (N = 448) were used for the Other Specialist and Self Contained French Control Programs.

Schools were selected with the assistance of administrators in the system on the basis of their location in the city and records of pupil mobility as indices to their socio-economic status. The sample population represented a stable, middle-to-upper income group in the city.

All classes in the experimental and control groups were regularly organized classes for the intellectually gifted. Pupils had been selected for these classes on the basis of:

1) teacher recommendation
2) intelligence
3) reading ability
4) mathematics ability
5) social and physical maturity
6) health status

FINDINGS BASIC TO THE COMPARISONS

Since the research design took into account such factors as intelligence quotients, initial achievement and attitude levels, out-of-school music experience, sex and grade sequence, it is appropriate to examine the results of these as significant components of the analyses.

Intelligence Levels

Mean intelligence quotients of the pupils who remained throughout the two-year period of the experiment remained substantially the same for all programs. The average IQ for boys in the 4-5 grade sequence ranged from 124.79 to 129.10; for girls, the range was from 122.93 to 127.85. For the 5-6 grade sequence, the range for boys was 128.41 to 132.22; for the girls, 128.11 to 131.00. For the analyses, pupils were grouped in three IQ levels: Upper, 130 and above; Middle, 120-129; Lower, 119 and below.

In using IQ levels as a basis of comparison, an assumption is made that the results will reflect some relationship between the dependent variable and intelligence. This was, in fact, the case. Higher ability pupils tended to have the higher scores in achievement across all programs, both experimental and control, and the results were statistically significant.

Achievement Levels

It was possible to analyze science achievement by using initial achievement levels. In all cases, the comparisons between levels were significant.

Attitude Levels

Since pupils were given attitude tests at the beginning of the study, an analysis by attitude levels was possible for Attitude toward Science, Scientists, Music and Musicians. All between levels comparisons proved to be statistically significant. No initial test was given for the Attitudes toward French and the French People.

Levels of Music Experience

In the analysis for music achievement, it was found that although the between levels comparisons by IQ were not consistently significant for the two grade sequences, differences were significant for music experience levels.

Sex Comparisons

Sex comparisons in the various areas yielded especially interesting results.

Achievement. In achievement, with remarkable consistency, boys achieved higher scores than girls in science, mathematics, and social studies. In science, both by IQ and achievement levels, these comparisons held level by level, boys always scoring higher than girls in all programs. In reading, the girls achieved higher scores than the boys, and the situation was similar in the analysis by IQ levels for music achievement, with girls achieving higher scores than boys. There were no significant differences in the analysis by music experience. Noteworthy is the fact that the highest score achieved by girls in mathematics in any program was always lower than the lowest mean score achieved by boys in the lower level.

Attitudes. There were significant sex differences in the attitude analyses in response to study of the specialist subject and attitude toward school. Boys had more favorable scores than girls in science, while girls tended to have more favorable reactions to the study of music, French, and school in general. In the Experimental Science Program, however, there was a significant interaction of sex and program, in attitude toward study of science. This role reversal was a highlight of the Experimental Science Program.

Interests. In all instances, except for the Experimental Science Program, boys showed consistently greater interest in science than girls, girls showed greater interest in music and French than boys, and girls showed interest greater than or equal to that of boys in the total curriculum. On the other hand, girls in the Experimental Science Program gave evidence of a reversal of these trends for science interest. Contrary to expectation, there were no significant differences between boys and girls within the Experimental Science Program in the area of science interest for the 5-6 grade sequence. In fact, the girls in all IQ levels had mean interest scores greater than those of the X-Science boys in the upper IQ levels.

Self Appraisal. In the area of self appraisal in the school subjects, sex comparisons again yielded interesting results. Girls had significantly more favorable self appraisal scores in the overall curriculum. In science, it was the boys who had the more favorable scores, although it should be noted that the Experimental Science girls had more favorable scores than girls in other programs, again reflecting the impact of this program on them. In reading self appraisal, the significant differences by sex occurred only in the 4-5 grade sequence, with girls having the more favorable scores, while in French and music self appraisal, the girls' scores were consistently more favorable than the boys' across all programs for both grade sequences.

FINDINGS IN ACHIEVEMENT

This study undertook to test two hypotheses relative to achievement: one hypothesized gains in the subject specialists' areas, and the second hypothesized gains in other major curriculum areas as a "halo" effect of the specialist teaching. With respect to French, another question was raised. Would the inclusion of a new curriculum area affect achievement in other areas?

Achievement in the Specialists' Areas

For two experimental programs, the Experimental French and the Experimental Music, comparisons yielded statistically significant differences favoring the experimental programs and the absolute differences between mean scores were quite substantial. The consistency of the results strengthens the significance of these comparisons. For the third program, Experimental Science, there were no significant differences in the comparisons with the Control pupils when initial achievement was taken into account, although the analysis by IQ levels yielded significant differences favoring the Control pupils.

Achievement in Science. In most of the comparisons for science based on initial achievement, there were no significant differences between the Experimental Science and the Experimental Music and Control pupils. For the analysis based on IQ levels, there were significant differences for both grade sequences favoring the Regular Controls. Comparisons with the Experimental French Program yielded significant differences in all but one case favoring the X-French pupils, in both grade sequences on both forms of the test and for both types of analyses, by IQ and initial achievement levels.

Achievement in Music. The Experimental Music pupils made significant and impressive gains in music achievement, especially in comparisons with other programs when out-of-school music experience was taken into account. The mean scores of the X-Music pupils were greater than for all other programs, even when the differences were not significant, as in the comparison by IQ levels with the Experimental French pupils.

Achievement in French. Achievement in French for the Experimental French Program was significantly greater than for pupils in other programs, especially at the end of the two-year teaching program. In comparisons with both self-contained control classes and those where another teacher within the school was used, the mean scores of the Experimental French pupils were significantly higher, both statistically and in absolute value.

Two observations are relevant at this point. One, it is important to note that the Experimental Music pupils did achieve greater scores than comparison groups even though there was much opposition to the program, especially by many "cooperating" teachers and the administration of one of the schools. Two, with respect to the Science Program, it should be noted that the special emphasis on teaching science throughout the city during the period of this experiment encouraged many teachers, especially teachers of

the gifted, to stress this area. It is of special interest that all pupils in all programs attained mean science achievement levels far exceeding national norms. However, as other analyses seemed to indicate, this attention on the part of control teachers must have been focused, if it operated at all, on contents and understandings in the area of achievement, since in other aspects of curriculum objectives such as attitudes, interests, activities, and self appraisal, the Experimental Science pupils showed consistent and quite remarkable gains.

Achievement in Other Curriculum Areas

In general, comparisons for achievement in reading, mathematics, and social studies yielded few significant differences between Control programs and the Experimental Science and the Experimental Music Programs. Achievement of Experimental Science pupils was significantly lower than that of RC-Control pupils in the 4-5 grade sequence for reading, and in the 5-6 grade sequence for mathematics. Experimental Music pupils achieved significantly lower scores than Controls in mathematics for the 5-6 sequence. Experimental French pupils in the 5-6 sequence tended to achieve significantly higher scores than those in all other programs and, for the 4-5 sequence, scores were greater than for comparison groups, even though not statistically significant.

Thus, it may be said that the hypothesis that specialist teaching in music and science might lead to greater achievement in other curriculum areas was not supported. On the other hand, introduction of specialist teaching in French, an added area of the curriculum, may have produced some "halo" effect that carried over to other curriculum areas, particularly mathematics and social studies. In addition, the data supported the hypothesis that the introduction of an added subject in the curriculum did not adversely affect achievement in other curriculum areas, but rather may have stimulated greater interest and accomplishment.

FINDINGS: ATTITUDE CHANGES IN THE EXPERIMENTAL PROGRAMS

It was hypothesized that the use of a specialist teacher would have a favorable impact on pupil attitudes. Three areas were considered: attitudes toward the specialist's subject area, attitudes toward the occupation or people represented by the subject, and attitudes toward school.

Attitude toward the Specialist's Subject Area

Generally, it may be said that there were favorable results with respect to two of the three programs, the Experimental Science and the Experimental French.

Attitude toward Science. In attitude toward science, all comparisons between the Experimental Science pupils and those in other programs were significant and in favor of the Experimental Science pupils. This was true for both grade sequences, in comparisons with experimental as well as regular control programs, for analyses based on initial attitude level.

Of special interest in this area was the interaction of methods by sex. The Experimental Science boys achieved higher scores than boys and girls in all other programs, but there were no significant differences in scores between the boys and girls of the Experimental Science Program. An interesting point here is that the Experimental Science girls in the 5-6 grade sequence achieved scores that were higher than those of pupils in all other programs, both boys and girls, including the Experimental Science boys. This role reversal was an important gain for girls of the Experimental Science Program, which recurred in other areas studied as well as attitudes.

Attitude toward Music. There were no significant differences between attitudes toward music of pupils in the Experimental Music Program and those in all other programs for the 4-5 grade sequence. For the 5-6 sequence, there were significant differences between the Experimental Music pupils and the Experimental French and Regular Controls. These differences, however, favored pupils in the other programs. The mean score for the music pupils was lower than that of any other group of pupils.

Attitude toward French. In comparing the attitudes of pupils toward studying French, the Experimental French pupils had more favorable scores than pupils in the OS-Control classes after one year of teaching and in the 4-5 grade sequence after two years of teaching. The difference was not significant in the comparison with the SC-Control pupils in the fourth grade after the first year of teaching, but there was a significant difference in the comparison for the grade 5 pupils and after two years of teaching, for pupils in the 5-6 grade sequence.

Thus it can be said that specialist teaching did, in fact, have a favorable impact on pupil attitudes toward studying science and French. The results were most consistent in the Experimental Science Program, and the role reversal for the girls' attitudes was especially noteworthy.

With respect to the Experimental Music Program, the specialist teaching did not have a favorable impact on pupil attitudes toward music. In spite of their striking progress in music achievement, Experimental Music pupils seemed to reflect the resentment of their classroom teachers toward the music program.

Attitude toward Occupations or People Represented by Specialist Areas

The only program which reflected a favorable impact on pupil attitudes toward occupations or people represented by a specialist area was the French Program.

Attitude toward Scientists. The introduction of a specialist teacher in science, especially one who engendered so much enthusiasm in other responses, did not produce any significant differences in attitudes toward scientists. Since mean scores for all programs fell within a narrow range, all well toward the more favorable end of the scale, one must assume that children generally had rather favorable attitudes toward scientists, even though they were not so consistent in their feelings about studying science.

Attitude toward Musicians. The introduction of a specialist teacher may have stimulated greater achievement in the subject area, but it did not seem to influence the attitudes of pupils toward musicians to any greater degree than did instruction by a regular classroom teacher. There were no significant differences in the comparisons between the Experimental Music pupils and those in all other programs on the test of Attitude toward Musicians.

Attitude toward French People. In general, the introduction of a specialist teacher in French seems to have generated favorable attitudes toward the French people, as well. In all comparisons but one, both at the end of the first and the second year of teaching, pupils in the Experimental French Program attained higher attitude scores than those in the other programs, and all differences were statistically significant.

Consequently, it may be said that specialist teaching had a positive impact in developing favorable attitudes toward the French people. In view of the intensive cultural program which was part of the experiment, this was a gratifying result. In terms of attitudes toward scientists, it may have been unrealistic to expect differences across schools, since there was an unusually favorable climate for scientists during the period of the study. As for attitudes toward musicians, considering the negative pupil reactions to other aspects of the program, the lack of significant differences may be considered a positive reaction. In any event, the results indicate only a potential value of specialist teaching in stimulating favorable attitudes toward vocations and people represented by subject areas.

Attitude toward School

Attitudes of pupils toward school in the three experimental programs were quite consistent with their performance in other areas. The most favorable impact on attitude toward school was in the Experimental Science Program. For the Experimental French Program, the results were inconsistent, and for the Experimental Music Program the results tended to be unfavorable.

Attitude toward School of the Experimental Science Pupils. In comparing the Experimental Science pupils with pupils in other programs, no single pattern emerged for attitude toward school. For the 4-5 grade sequence, there was a significant difference which favored the Experimental French pupils, but there were no significant differences for comparisons either with the Experimental Music or the Regular Control pupils. For the 5-6 grade sequence, there was no difference between the X-Science and X-French pupils. There were significant differences, however, favoring the X-Science pupils, in comparisons with the Regular Controls and the X-Music pupils.

Attitude toward School of the Experimental Music Pupils. There were no significant differences in attitude toward school in the comparisons between the pupils in the Experimental Music Program and those in other programs for the 4-5 grade sequence. For the 5-6 sequence, there were significant differences between the Experimental Music Program and each of the other programs. These differences, however, favored the other programs and, once again, the mean for the music pupils was lower than for any other pupil group in the comparison groups, including the controls. In these analyses, there was an interaction of methods, sex, and IQ levels. This was directly related to the Music Program, where the lower ability boys had significantly lower scores on Attitude toward School than any other subgroup in the analysis. Their mean score was lower than any other mean by from 9 to 19+ score points. There was no ready explanation for this marked contrast in reactions by these pupils, but it may serve as a clue to related unfavorable attitude reactions by the pupils in this program.

Attitude toward School of the Experimental French Pupils. In comparing the Experimental French pupils with pupils in the other programs, no single pattern emerged. One-half the comparisons yielded significant differences, the other half did not. In the 4-5 grade sequence, the Experimental French pupils had significantly higher means than pupils in the X-Science Program, but not in the X-Music and RC-Control Programs. For the 5-6 grade sequence, the situation was reversed. There was no significant difference between X-French pupils and those in the X-Science Program, but there were significant differences between the X-French pupils and those in both the X-Music and RC-Control Programs.

Results for the analysis of attitude toward school are to be considered as tentative, since the semantic differential technique that was used cannot be said to cover the many dimensions of attitude toward school that could be tapped. However, inconclusive as it may be, one might say that under certain conditions a specialist program could have some favorable impact on attitudes toward school.

FINDINGS: THE DEVELOPMENT OF INTEREST PATTERNS

It was hypothesized that pupils taught by a specialist teacher in a curriculum area would be more likely to display greater interest in subjects and activities related to that area than those taught by a regular non-specialist teacher. This hypothesis was supported by the data for the Experimental Science and Experimental French Programs, but not for the Experimental Music Program.

Development of Interests in Science

A highlight of the results for the analysis of interests was the role reversal for girls. In all instances, except for the Experimental Science Program, boys showed consistently greater interest in science than girls. These differences were statistically significant. For girls in the Experimental Science Program, however, there was a reversal of this trend. There were no significant differences between boys and girls within the Experimental Science Program in the area of science interest for the 5-6 grade sequence. In fact, the girls in both IQ levels had mean interest scores greater than those of the X-Science boys in the upper IQ levels. In individual items of the Interest Questionnaire, relating to particular science activities, the role reversal recurred.

Interest in the Prescribed Science Curriculum. Even though X-Science pupils responded favorably to activities directly associated with the curriculum offerings of the experimental program, they were not impressed with the more formal prescribed curriculum of the schools. At the end of two years of specialist teaching, mean scores of the X-Science pupils were significantly lower than those of pupils in the RC-Control group for the 4-5 grade sequence, but for the 5-6 sequence they were higher, although the difference was not statistically significant. There were no significant differences in the comparisons with the X-French Program. In the comparisons with the X-Music Program, there were significant differences in both grade sequences, and both favored the X-Science pupils.

Interest in Science Activities. Pupils in the Experimental Science Program tended to express greater interest in visiting centers of scientific interest than did pupils in other programs, although the trend was not consistent for either grade sequence. Most notable was the marked interest in visiting a science laboratory and the Weather Bureau. While youngsters in all programs expressed interest in such trips, those in the X-Science Program were most responsive. A breakdown by sex showed that the girls were almost as interested as the boys, and that more of them expressed such interest than girls in any of the other programs. A greater proportion of X-Science pupils, both boys and girls, than pupils in all other programs in both grade sequences would have liked to read more about science and to have more time for science in school. More X-Science pupils than others considered science their favorite subject. It was the girls, not the boys, who showed significantly greater interest in science study in comparisons with all programs. As confirmation of these results, fewer X-Science pupils than pupils in all other programs listed science as a least favored subject.

Results of these analyses indicate that specialist teaching in science did stimulate greater interest in the subject and related activities.

Development of Interest in Music

In general, pupils in the Experimental Music Program showed very little interest in the subject. The persistent negativism shown by the Experimental Music pupils in matters concerning this area leads one to suspect that their reactions had been influenced, at least in part, by the general antagonism to the program by the teachers and administrative personnel in their schools.

Interest in the Prescribed Music Curriculum. There were no significant differences in the comparisons for pupil interest in the music curriculum between the X-Music and other programs for the 4-5 grade sequence and, for the 5-6 grade sequence, such significant differences as there were favored other programs.

Interest in Music Activities. Pupils in the Experimental Music Program showed varying degrees of interest in musical events. In the 4-5 grade sequence, they were more interested than pupils in other programs in attending an orchestra rehearsal or a recital by a famous musician; yet, oddly enough, not one expressed either of these interests in the 5-6 grade sequence, in marked contrast to pupils in other programs. While the 4-5 grade sequence music pupils reported interests at least equal to those in other programs for concerts or symphonies, in the 5-6 sequence the number of their responses was markedly lower than for pupils in other programs. These and other reactions to musical events are to be noted particularly, since the pupils in the Experimental Music Program were taken to concerts and guest musicians were invited to perform for them.

In response to questions related to use of spare time, reading in the area of music, or music as a favorite subject, there were no consistent trends. The few significant differences that were found favored other programs. When pupils were asked what school subject they liked least, there was no significant difference in the responses of pupils in the 4-5 grade sequence across programs, even though more pupils in the X-Music Program mentioned music as a least liked subject than in any other program. In the 5-6 sequence, the X-Music pupils again expressed greater distaste for music than pupils in all other programs, but this time the differences were significant. In a breakdown by sex, it was the analysis for girls that yielded the significant difference. This is in direct contrast to the usual expectation for girls' responses.

The hypothesis that specialist teaching in music would lead to greater interest in the subject and related activities was not supported by these data.

Development of Interests in French

The evidence presented seemed to support the hypothesis that instruction by specialist teachers in French might stimulate greater interest in the subject and related activities.

Interest in the Prescribed French Curriculum. Experimental French pupils expressed significantly greater interest in the French-related curriculum activities than pupils in either one of the control programs. As in several other areas of comparison, these differences were significant both statistically and in absolute value.

Interest in French-related Activities. Although the Experimental French pupils were not quite so enthusiastic as the Experimental Science pupils in their expressions of interest, they did react quite favorably to many of the activities. With a fair amount of consistency, they reported interest in visiting French restaurants, exhibits, and touring places as well as the country itself to a greater degree than did control pupils. More X-French than control pupils reported a preference for French-related reading activities and for French as a favored school subject. There were quite large differences between the X-French pupils and the controls, all favoring the experimental group, in response to the question of wanting more time for French in school.

Development of Interests in the Total Curriculum

Reactions of pupils to the overall curriculum in the Experimental Science and Experimental Music Programs were consistently lower than those of pupils in either the Experimental French or the RC-Control Programs. There were no significant differences between the Experimental French and the RC-Control pupils in their reactions to the overall prescribed curriculum. Thus, one must conclude that the impact of specialist teaching on interest in the total curriculum was negligible.

Summary - Interests

A review of the results of the interest analyses shows that the hypothesis of increased interest in the specialists' areas and related activities as a concomitant effect of specialist teaching was supported by the results of two experimental programs, in science and French, but not in music.

FINDINGS: VOCATIONAL CHOICES

An analysis of responses to a question on vocational choices was possible for only the Experimental Science and the Experimental Music Programs. The limited experience of the pupils, whose ages ranged from about 8 to 12 years, made it difficult for them to respond to the question in terms of French-related occupations. In general, at the age levels represented by our population, there is limited knowledge of both the variety of career fields open to them and the relevance of subject matter to particular fields. Consequently, it is not surprising that there were no significant differences between programs for either grade sequence in the analyses. Differences by sex were significant, with girls choosing musical fields three times as often as boys, while in science the proportions were reversed, boys choosing scientific vocations about three times as often as girls.

FINDINGS: PUPIL SELF APPRAISAL IN CURRICULUM AREAS

An hypothesis of the study was that pupils' self concept would improve in classes where specialist teaching occurred. Since self concept is not a clearly defined area for study, in this Project it was limited to a pupil's appraisal of how he thought he performed in the curriculum areas to which he was exposed. He was asked also to rate himself on how he thought such reference persons as his mother, father, teacher and classmates would rate him on these areas. Scores were obtained for self ratings and for a total of all referents including the self for science, music, French, reading, and the total curriculum.

Pupil Self Appraisal in the Specialists' Areas

As has been the pattern throughout most of this study, responses on self appraisal in science were consistently positive for the Experimental Science Program, moderately so for the Experimental French Program, and generally negative for the Experimental Music Program.

Pupil Self Appraisal in Science. For both the science self and total scores, there were significant differences favoring the Experimental Science Program for both grade sequences. There was an interaction of methods by sex in the 5-6 grade sequence comparisons. Although the boys had the more favorable scores in both sequences across programs, scores of Experimental Science girls were about equal to those of the boys and, furthermore, they had more favorable scores than girls in all other programs. For the 4-5 grade sequence, it is interesting to note that, while the scores became more favorable as IQ levels decreased for boys, the reverse was true for girls in the X-Science Program. Girls of the lower IQ levels tended to have the more favorable self appraisal in science.

Pupil Self Appraisal in Music. In comparing the pupils of the Experimental Music Program with those in other programs in music self appraisal, no significant differences were found for the 4-5 grade sequence for either the self or total music scores. For the 5-6 sequence, there were significant differences for both scores favoring the X-French pupils and significant differences for the total scores only favoring the X-Science and RC-Control pupils. Thus, the hypothesis that the use of a music specialist in classes for the gifted would raise pupils' self appraisal in that field was not supported by the results of this study.

Pupil Self Appraisal in French. Pupil self appraisal in French was generally more favorable for those in the Experimental French program than for pupils in the control schools. In the 4-5 sequence, for both the self and total scores, there was a significant difference between the X-French and OS-Control pupils, but not the SC-Controls. In the 5-6 sequence, there was a significant difference in the only comparison made, with the SC-Control pupils.

On the basis of these analyses, it may be said that the hypothesis that pupils' self concepts in specialist areas would be more favorable in classes where specialist teaching was employed was given strong support in two of the three programs. It was successful in science and French, but not in music. It is likely that self appraisal in school performance is a function not of attitudes alone but also of other influences. As has been noted here, there were many factors that mitigated against favorable response in the X-Music Program.

Pupil Self Appraisal in Reading

The analysis for self appraisal in reading yielded no significant differences in comparisons between the experimental programs and the control group. In all the analyses, there was only one comparison which did yield significant differences and that one favored the Experimental Science pupils in the 5-6 sequence over the Experimental French pupils. This was a rather unusual reversal, since the X-French pupils tended to have higher achievement scores than pupils in other programs, even though the differences for reading were not significant.

Pupil Self Appraisal in All Curriculum Areas

As in the case of pupil self appraisal in the specialists' area, responses to the total curriculum were favorable to the experimental programs most frequently for the Experimental Science group, less so for the Experimental French pupils, and not at all for the Experimental Music pupils.

For the X-Science Program, significant differences were found in comparisons with the X-French 4-5 grade sequence, and in the 5-6 grade sequence in comparison with the X-Music Program. Differences were not significant in the comparisons with the Regular Control pupils. The X-French pupils had more favorable scores than the Experimental Music pupils in the 5-6 sequence, but they had less favorable scores than either the X-Science or the RC-Control pupils for the 4-5 grade sequence. For the X-Music Program, significant differences were found for all comparisons in the 5-6 grade sequence and for the comparisons with the RC-Control group only in the 4-5 grade sequence. All the differences, however, favored other programs and not the X-Music pupils.

Consequently, it cannot be said that the experimental programs had any consistent impact on self appraisal in the overall curriculum. There were some positive results for the Experimental Science Program, with no negative effects; there were both positive and negative results for the X-French Program; and all results were negative for the X-Music Program.

Pupil Self Appraisal - Summary

The hypothesis that pupil self appraisal in the specialists' areas would be improved with specialist teaching was supported by the data presented for the Experimental Science and French Programs, but not for the Experimental Music Program.

With respect to impact of the specialist programs on self appraisal in reading and the overall curriculum, the data indicate a probable impact on self appraisal in the Experimental Science Program, a somewhat doubtful and inconsistent impact for the Experimental French Program, and a generally negative impact for the Experimental Music Program. Obviously, further research in this area is indicated to clarify these trends.

FINDINGS: PARENT REACTIONS TO THE EXPERIMENTAL PROGRAMS

Most enthusiastic parent support for the use of specialist teaching occured in the Experimental Science Program. Both in parent observations of their children's progress and in their reports to school principals and regular classroom teachers, parents expressed great satisfaction with the work and urged continuation and expansion of the program. Objective findings for the Experimental French and Experimental Music Programs were not encouraging, since parents made few observations that could be traced to the impact of the program. On an informal basis, parents were satisfied with the French Program and urged its continuation, while parents in the Music Program saw only limited gains for their children and were not encouraging about continuing the work. Thus parental reaction may be said to be encouraging for specialist teaching in areas of which they approve, such as science and French, but discouraging in an area such as music, where they feel that they can provide adequate training outside the school.

Parent Reaction to the Experimental Science Program

In general, parents of children in the X-Science Program were very well satisfied with their children's growth in science interests. They reported significant interest in reading science books, developing scientific hobbies, and a preference for science as a school subject. They observed favorable changes in attitude toward school at the end of both the first and second year of teaching. Principals, too, reported that parents were most enthusiastic about the program and felt it should be continued and expanded.

Parent Reaction to the Experimental Music Program

In the Experimental Music Program, although more parents of pupils reported that their children requested music lessons and more seemed to recognize musical talent in their children than in other groups, the results were not consistent for all comparisons. Generally, parents observed few favorable reactions in their children during the experimental music teaching period. Principals' reports showed conflicting feelings on the part of parents. In one school, the parents organized after school activities in music to encourage further work in the area and seemed to be well pleased with the program. In the second school, parents were not at all supportive of the program. There was a feeling, reported to cooperating teachers and principals, that music was an out-of-school activity and that the time in school could be better spent on other curriculum activities. It is to be noted that the sample of this study represented a stable, middle to upper income level of the city who could afford and actually did provide private music instruction for their children.

Parent Reaction to the Experimental French Program

In terms of responses to our questionnaire, there was no evidence from the data presented that parents had noticed any unusual gains for their children that might be attributed to the impact of the specialist French teaching. They tended to consider foreign language teaching as a minor school subject and did not pay as much attention to it as they did to such curriculum areas as reading, mathematics, social studies, or science. On the other hand, principals and cooperating teachers reported that parents were well pleased with the program and had expressed the desire for continuation and expansion of the work. They were pleased that children could make an early start on learning a foreign language and felt that the introduction of French was a source of valuable enrichment for their children. Parents of children not participating in the experiment asked that foreign language be taught to <u>all</u> children.

FINDINGS: REACTIONS OF PRINCIPALS TO THE SPECIALIST TEACHING PROGRAMS

Generally speaking, reactions of the principals to the use of specialists in the elementary school, as conceived in this program, were favorable. They felt that the introduction of the science, music, and French specialist in a program of coordinated teaching, helped to:

1) Stimulate teacher and pupil interest in the specialist areas.

2) Promote good public relations.

3) Provide more opportunities for teacher training.

4) Provide superior instruction by specialists.

5) Provide enrichment in the elementary school program.

6) Identify and encourage potential talent.

7) Vitalize teaching throughout the school.

8) Supplement the limited knowledge of teachers in selected areas.

9) Provide better opportunities for gifted children to learn, to explore, and to create.

10) Provide more varied and extensive use of audio-visual aids.

11) Provide greater personal satisfaction for each child.

Principals listed several disadvantages of the programs. These were:

1) Restriction of the work to classes for the gifted.

2) Scheduling that created time pressures--too time consuming.

3) Lack of articulation with the junior high schools in music and foreign language.

4) Restrictions created for reorganizing classes.

5) Inadequacy of the time the specialist spent in the school.

6) General application of the work--inappropriate for pupils not interested or, in music, not talented in the instruments.

7) Lack of time for planning conferences between teachers and specialists.

8) Limited number of specialists.

9) Reduction in time for other curriculum areas.

Principals made the following suggestions:

1) Continue the programs, as they were found to be worthwhile by pupils, teachers, and parents.

2) Provide for better articulation with the junior high school, especially in music and French.

3) Make the French program a daily one.

4) Begin the specialist program early and continue it for three years, in grades 4, 5, and 6.

5) Expand the specialist program to all pupils instead of limiting it to IGC classes.

6) Give the specialists more time for teacher training.

7) Assign specialists to the school on a full time basis.

8) Expand the programs to include more schools.

FINDINGS: REACTIONS OF THE SPECIALIST TEACHERS

The specialist teachers were well satisfied with the implementation of their programs, but they did make several suggestions and observations. They were in unanimous agreement that the key to the success of their programs lay with the active cooperation of the school administration and the cooperating teachers. Without this, no amount of effort on their part could overcome the handicaps of the unfavorable attitudes generated which became reflected in the pupils' responses. They stated, also, that travelling from one school to another within the same day was inefficient. It wasted both time and energy. As a group, they felt that the guidance and supervision they had received from a centrally controlled project had given them a measure of freedom for creative work they could not have enjoyed in another setting.

The science specialist made such specific suggestions as planning to concentrate science teaching and equipment in one room, determining in advance the willingness of classroom teachers to cooperate, and stressing the necessity of orienting both teachers and administrators in the objectives of the programs.

The music specialists stressed the necessity of having sufficient instruments and materials and in time, establishing cooperative attitudes with administration and cooperating teachers toward the program, and screening of pupils for interest and ability in the area of music.

The French specialists felt that the freedom they had to experiment and develop a program had been a great asset. They suggested that daily lessons, even though shorter in duration, were preferable to the alternate day schedule, and they expressed a need for more materials and for a revision of those that were available.

FINDINGS: REACTIONS OF THE COOPERATING TEACHERS

In general, reactions of the cooperating teachers were favorable to the specialist teaching program, especially in the areas of science and French. Reactions to the music program were mixed, some negative and some positive. Yet, in response to a question about extending specialist teaching to other areas, cooperating teachers in all programs cited music, science, art, and foreign language as areas in which this would be most valuable and which they would like to see inaugurated.

Cooperating Teachers in the Experimental Science Program

Cooperating teachers in the Experimental Science Program were most enthusiastic about the work and recommended not only its continuation, but also expansion to other grade and ability levels. They listed many advantages to the pupils, and could find almost no disadvantages. They pointed out that the class covered more work in science, that children became more aware of scientific phenomena, that the program stimulated curiosity and a desire to learn, elicited creative potential of the pupils, and stimulated an inquiring attitude. Teachers also pointed out that they felt unsure in the area and were grateful for the opportunity to have training from a specialist in it. They noted improvements in classroom discipline and favorable changes in individual pupils' reactions.

Cooperating Teachers in the Experimental Music Program

In the Experimental Music Program, reactions of the cooperating teachers tended to be more unfavorable than favorable. They noted that there were advantages for the pupils in being exposed to musical instruments and music experiences, in having a chance to be identified as talented, and in developing sensitivity, taste, and judgment in auditory experiences. They stressed, however, many disadvantages as they saw them. These are some of the disadvantages they cited:

1) The major part of the instrumental period was taken up with tuning up.

2) Groups were too large for instrumental music.

3) Instruments were not always available for practice.

4) The program consumed too much time.

5) Disinterested pupils destroyed the proper climate for this type of instruction.

6) The results did not warrant the time, money, and effort involved.

7) The curriculum could not be covered in the allotted time.

8) Some of the theory was on too high a level for young children, creating restlessness and boredom.

These teachers did not see any value in continuing the program, and they felt that the time could be spent more profitably in teaching areas that could produce a greater return.

Cooperating Teachers in the Experimental French Program

In the Experimental French Program, the cooperating teachers seemed to have enjoyed the experience and participated by aiding the specialist in the classroom. They tried to incorporate the work of the French lessons into other areas of the curriculum and to encourage pupils to greater mastery of the language. They seemed to feel that daily lessons would be more desirable and that the program should not only be continued but also expanded to include more pupils of all ability levels. They did express concern about the time consumed by the French Program which was lost for other work, especially enrichment activities in other curriculum areas.

GENERAL SUMMARY

Specialist teachers were utilized in classes for the intellectually gifted in three major areas, science, music and French, for a two-year experimental program in a coordinated teaching plan.

Two grade sequences were involved, grades 4-5 and 5-6.

Pupils were tested in the areas of achievement, attitudes, interests, and self appraisal. Questionnaires were used to obtain principal, teacher, and parent reaction, as well as information about pupil interests and activities.

Instruments used included both standardized and Project-constructed measurements.

A review of all the available evidence provided by the study suggests the advisability of using specialist teachers in specific content areas for the teaching of gifted children in a coordinated teaching situation. This conclusion is based on data which showed that, when the major objectives of an educational program were considered, pupils taught by specialists attained these goals with significantly better results than those taught by regular classroom teachers, and it is based on a consideration of results across all three experimental programs. These results showed gains in achievement, attitudes toward the specialist area, interests in activities related to the specialist subject, and improved self appraisal in the area.

Principals, cooperating teachers, and parents supported the programs, noting many advantages to the pupils. The importance of such support is to be stressed, as was shown by the results obtained for the Music Program. There, in spite of notable gains in music achievement, in the areas of interests, attitudes, and self appraisal, responses seemed to reflect the negative reactions of the parents, regular classroom teachers and school administrators.

Replication of this study, with more teachers involved in the experimental programs and greater control over participating groups to retain the essentials of good research design are strongly recommended.

An additional factor which must be considered in research with the gifted is the general lack of suitable instruments for pupils of high intellectual calibre at the elementary school level. Several were developed for this study and appear, with relevant psychometric data, in Section 1 of the Technical Appendix.

The Identification of Academically Talented Black Students: A Hidden Exceptionality*

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To be Young Gifted and Black

Oh what a lovely precious dream

To be Young Gifted and Black

Open your heart to what I mean.[1]

Many times when educators attempt to describe a phenomenon in their "quasi objective" fashion they resort to subjective statements of the same reality by famous poets to substantiate the importance of the phenomenon, thus you find the quote above by Nina Simone, yet some people are already saying, who is she" Her song "To be Young Gifted and Black" provides the essential ingredients for this presentation. I will also deal with why you don't know her further on in this paper. There is a scarcity of literature related to the identification and development of talents and giftedness of Black children, which in itself indicates that there is a problem. Let me briefly outline a study, which may assist in identifying the nature of the problem. The study[2] was conducted with 66 white female undergraduates and 264 seventh and eighth graders attending three junior high schools in a midwestern community. White and Black junior high schoolers were randomly assigned to either the "gifted label" or "nongifted label" group. Each student teacher was given this infor-

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[1] To be Young Gifted and Black. (by Nina Simone and Irving J. Weldon Jr., Minandy). The theme for this song was derived from the play by the same name written by Lorraine Hansberry 1969.

[2] The Effect of the Labels "Gifted" and "Nongifted" on Teachers Interaction with Black and White Students. University of Illinois Urbana-Champaign (mimeograph). Pamela Rubouits and Martin Haehr.

mation along with a teaching task to perform. Systematic recordings were taken during the assigned teaching task period which focused on six variables:

1. Teacher attention to students statements, subdivided into requested and spontaneous student statements
2. Teacher encouragement of students' statements
3. Teacher elaboration of students' statements
4. Teacher ignoring of students' statements
5. Teacher praise of students' statements
6. Teacher criticism of students' statements

The results were of special interest because of the comparisons of teacher interaction with Black and White students. In this regard, in the authors words; "The study provides what appears to be a disturbing instance of White racism. Black S were given less attention, ignored more, praised less and criticized more. More startling perhaps was the interaction between race and label, which suggests that it is the gifted Black who is given least attention is the least praised, and the most criticized, even when comparing him to his "non gifted" Black counter-part". Post experimental interviews indicated that teachers were not suspicious of the experimental assumptions and hypotheses, thus depending wholly on teacher recommendations for the identification of talented blacks is subject to serious question.

Its no wonder that Nina says "Open your heart to what I mean". The charge of racism is bantered around so frequently and labeled just a semantic argument by many, so that a study which documents racism in action dramatizes the issue more clearly, and suggests that intervention is necessary. Some clear attention must be paid to the racial attitudes of pre and in-service teachers. Just imagine the same processes as measured by this study taking place every day all over this country. At the same time think about the devastating effects on the children we say we serve. The impact of such behavior can be found in several sources such as Death At An Early Age by Kenteff. Our Children are

Dying by Kozol etc. The literature is replete with all kinds assertions that Black children are "educationally deprived", but very little discussion of who might be doing the depriving!

3."A large amount of the literature on the Black child makes little or no pretense of systematic inquiry but is frankly speculative or descriptive. It's predominating emphasis is on a wide range of educational approaches and programs - preschool - college which are designed to compensate for presumed inadequacies in their primary socialization". Very serious considerations has to be given to "teacher racial attitudes", the practice of attributing performance decrements solely to characteristics of the learner has to be stopped.[4] Some clear attention should be paid to the teaching - learning processes and how negative racial assumptions are activated in terms of pedagogical practices which deny Black children and minority children in particular the opportunity to learn and grow to their full potential.

Cause you know
In this whole wide world
There's a million, a million boys & girls
Who are Young Gifted and Black
Thats a fact, Oh yes it is.[5]

There are three distinct components of the process of identifying talented individuals namely; searching, discovering, and selecting. One common practice

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3. Wilkerson D. A. Prevailing and needed emphasis in research on the education of disadvantaged children and youth. Journal of Negro Education, Summer 1964, pp. 358 - 366

4. Wilkerson D. A. Blame the Negro Child. Freedom ways Fourth Quarter. New York Freedom Ways Associates Inc. 1968.

5. Loc. cit, Nina Simone and Irving Weldon Jr.

of schools is to rely wholly or heavily on paper and pencil measures, teacher selection, and academic achievement for selecting talented students. The reliability of such methods for talent discovery and selection has been questioned for several reasons.

6. Cheek (1969) found a very low correlation between teacher ratings and student scores on creativity test, suggesting that teachers have difficulty identifying creative students based on the measures and criterion available to them at present. Serious concern has been registered concerning the abuses of administering intelligence measures which relegate Black students to classes for the mentally retarded on the basis of their preformance on "measures of intellectual functioning" which are reputed to be culturally loaded.[7] Just as there are inordinate numbers of Black children in programs for the retarded on the other end of the continuum there are very few Black children identified for inclusion in groupings and classes for the gifted or talented. This fact could be attributed to the same phenomenon that delegates the children to special classes for the retarded (i.e. cultural irrelevancy). Thus on one end of the continuum, The Black Child is The Hidden Exceptionality.

At this time I would like to focus on the insensitivity of existing measurement tools and instruments in assessing academic talent in Blacks:[7] We at the University of Minnesota are analyzing intelligence and achievement tests, commonly used by the public schools to measure groups of children, and checking systematically for cultural loading and items which invalidate or deny the Black

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[6] Cheek J. F. An Analysis of differences in creative ability between white and negro students, public and parochial schools. three different grade levels, and males and females. Wisconsin State Univ. June 13, 1969 (Eril No ED 031-757).

[7] A suit instituted by the San Francisco Bay Area Association of Black Psychologist along with other concerned parties from the San Francisco Black Community against the San Francisco Board of Education is an example of the seriousness of the testing question as it relates to Black children.

experience. One widely used intellegence test administrated by law yearly was selected for scruting. Let me just report by example what we found. We reviewed each item on the verbal section of the test for values, urban experiences, racial, and cultural implications and language usage. We selected the verbal portion of this examination which contains twenty-five items thirteen which we found questionable

Here are some examples of what was found:[8]

VALUES

1). The important thing is not so much that every child should be taught as that every child should be given the wish to _____.

A) Learn B) Play C). Hope D) reject E). teach

I underscored the word important because that indicates a value. Given the context of Blacks in America being relegated to a second class citizenship. All the words except play could be appropriately inserted and depending upon your perspective be weighted as a correct response. (i.e. learn, hope, reject or teach.)

2). It is_____ to be generous with other people's property.

A) desirable B) right C) good D) important E) easy.

Many Black children have learned very early not to mess with anybody's property.

RACISM and CULTURAL INVALIDATION

1). When a dove begins to associate with crows its feathers remain _____ but its heart grows black.

A) black B) white C) dirty D) spread E) good.

The symbolism behind this analogy is racist there is no other way to describe it.

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* 8 A more complete analysis and critical comments of the tests will appear in another article written by this author and Dr. John Taborn, Carl Gains and Arnold Vinson.

2). How the _____ roses flush up in the cheeks!

A) white B) pretty C) small D) yellow E) red

URBAN EXPERIENCES

1). The _____ must bend when the wind blows upon it.

A) ground B) house C) path D) grass E) sky

For numbers of poorchildren B the house would seem to be a very appropriate response. Observation of grass blowing the the meadows doesn't speak to the urban experience.

2). Caterpillars spin _____ for themselves in the fall.

A) webs B) around C) moths D) cocoons E) butterflies

One has to have trees to have butterflies and many urban children equate caterpilliars with earth moves for urban renewal, and they spin around.

BLACK LANGUAGE USAGE(9

1). Choose the word which has the same meaning, or most nearly the same meaning, as the word in dark type at the beginning of the line.

DOG A) afraid B) song C) animal D) large E) fly

Using the difinition of dog from the Afro-American Slang Dictionary, we find that dog could mean an unfair person; and rarely, an exceptional person. We also find that fly can mean to be brash. This dog and fly can be conceptually related using these definitions.

2). Choose the right answer to this problem and mark the answer space.

A boy bought a pencil for 10 cents and some paper for 10 cents. How much did he spend?

A) 5 cents B) 10 cents C) 15 cents D) 20 cents E) none of these

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(9 Every word used for items were looked up in the Dictionary of Afro-American Slang by Clarence Major. New World Paperback N.Y. 1970. Ninteen of the seventy words had definitions different from what the test authors intended for them to have.

The answer for some Black children could very well be none of these. It's been documented that some Black children consistently omit the obligatory marker -s- to indicate plural.[10] Thus all the answers above have this obligatory marker.

In essence the assessment ofthis examination indicates that more than half the questions asked on the verbal section could be seriously questioned in terms of their insensitivity to the "urban Black experience". The items were definitely not only culturally invalidating but racist at points in terms of analogies made. Such measures should be discorded and definitely not used in schools because of the above construct flaws. This isn't the only exam that has these types of items built into it upon reviewing a widely used achievement measure we also found the same cultural invalidating procedure used in terms of the selection of items. This bias built into the exams can be a stimulus to produce performance, "characterized by guessing, random responses, skipping, hasty, unreflective responses, prolonged reflection and ready capitulation to test items as too difficult".

This author is suggesting the development of culture full examination for more appropriate assessment of the talents of Black youth. These measures would be used for the development of sound pedagogical practice to enhance the child's intellectual development rather than for deselection purposes. This process would reduce the amount of misclassification, child abuse and wasting of talent. This approach calls for a large expenditure of time, effort and monetary resources. Until the real thing comes along other methods processes and attitudes must be generated which give children a chance to perform and display what talents they do have. Isn't it strange that methods of identifying and developing the talents

10. Allen R. Sullivan Afro-Anglo Communication In America. Some Educational Implications. (pending publication)

of Black children have been fairly well developed in terms of instrumental and vocal music, dancing, athletics etc. I am suggesting that this is because of the entertaining mentality people have about Blacks. This attitude also was the reason why many of you didn't know who Nina Simone is, because she has made the choice not only to entertain but to educate her people. This dual focus is frowned upon by the recording establishment thus she didn't get much exposure to a larger audience in America. In essence there was a deliberate attempt to hide her communicative talents. Thus alternative methods are called for if we are to begin to identify and utilize the hidden numbers of talented Blacks.

To be young gifted and Black
We must begin to tell our young
Don't you know that there is a whole world waiting
A whole world waiting for you.[13]

It is extremely necessary but not sufficient to point to the negative attitudes, assumptions and pedagogical abuses of some of those responsible for administering and interpreting intelligence and achievement test scores of Black youth. Fundamental to this paper is the question, of what is intelligence, and how many ways can it be assessed? The belief that intelligence is a fixed ability which is inherited has relegated many Black youth and others to permanent assignments in inferior status groupings within schools.[14] This

11. Barnes Edward J. "Intellectual Assessment of Black Folks: Perspectives on Misconceptions, Shortcomings, and Consequences. Presented at 47th C.E.C. Convention, Denver Colorado, April 6-12, 1969.

12. Mc Ewen Charles "Are I.Q. Tests Color Blind?" Twin City Sentinel Winston-Salem N.C. August 17, 1971.

13. Loc Cit. Nina Simone and Irving Weldon Sr.

14. Donald J. Hayman Special Classes Helpful or Harmful Crisis January-February 1971.

condition is intolerable, thus the assumption that intelligence is a static quality of guanity developed by nature is unacceptable. We have enough information on the impact of social variables on the performance of intelligence examinations to be suspicious of those who continue the nature hereditary argument when discussing the intellect of Black youth.

What is needed and has started is a new social psychology and humanistic psychology with an emphasis on the interaction of the individual with specific social environment. More specifically within this decade there has been an increasing amount of attention given to the development of "cultural strength and affirmation", within so called "deprived cultural groups". Thus when Nina, says "we must begin to tell our young", she speaks to the development of a ideology and belief system that doesn't depreciate ones self. "Almost all Blacks who embrace Blackness for the first time feel a lifting of spirit -- as if they have been freed from a burden. There is an accompanying higher valuation of one's gifts and capacities."[16]

Where do We Go From Here?

There are very specific problems that have impeded and continue to impede the educational establishments progress towards identifying and developing the talents of Black youth.

A). The lack of long range reliability of predictions especially based on academic achievement. We are constantly faced with trying to explain why

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[15] Education to Govern: A Philosophy and Program for Learning Now! Published by The All-African Peoples Union P.O. Box 3309 Jefferson Station Detroit, Mich.

16. William Grier and Price Cobbs The Jesus Bag . Section entitled "Black Psychology p 115. McGraw Hill Book Co. 1971.

the "morning glory" i.e. a child that has shown potential which seems to diminish and the"late bloomer", a person who begins to show potential when the race should be coming to an end. Since schools use academic performance, and test scores as the major criterion of success they provide specific opportunities for those who are successful on tests and, they don't provide for those who they feel have not been successful academically. Thus the paradox is that schools predict that some children have potential and help develop that potential programmatically, while they say that other children don't have the potential and then set up situations so that their initial assumptions are confirmed. The major error in the schools assumption about the potential for children achieving in life tasks and developing their talents, is to assume that school and life require identical abilities and character traits.[17]

B). Lack of understanding of the fact that the Black child has a varied background with varied interests and behavioral styles. The standards of performance in terms of linguistic patterns, family life style, rules of play, etc. are different from what teachers may expect. Thus there is often value conflicts between teacher and student in which the student often loses because of the power position of the teacher. The student often views the teacher's attempt to change him rather than accept him as cultural invalidation.

C). Parents of Black children are consistantly not included in the educational decision making processes that effects and affects the lives of their children. Schools as a rule don't communicate with Black parents because there is an assumption that they are inadequate[18] and disinterested.[19] The parents and

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17. D. McClelland et al Talent and Society D. Van Nostrand Co. Inc. Princeton, N.J. March 1968.

18. Joan & Stephen Baratz Social Science Base for Institutional Racism Harvard Educational Review. Winter 1970

19. R. C. Shadick The Myth of the Apathetic Parent. The Journal of Negro Education. Spring 1970 Section D P 184-187

community must be included in the educational decision process of schools are to have any impact upon the motivational patterns of the Black youth. There must be a recognition of the fact that parents of the children we serve do have many ideas and strategies etc. which will be a direct significance for the job we are attempting to do. (i.e. identification of talented Black youth.)

D). Another area which has received considerable attention as it relates to the education of Black youth is teacher training. There needs to be two areas of focus 1) providing positive experiences and information related to accepting and understanding the differing cultural styles and values found in most urban inner city classrooms. In the study of the racial attitudes and corresponding behaviors found earlier in this study indicates that the training program they were in should have dealt with their racial attitudes and behavior. 2) If the teacher is to identify talent and provide a condusive climate for the encouragement and development of the talents of their student they should have experienced this type of climate themselves.[18]

E). For many reasons there has been a considerable amount of attention paid to the teaching of specific skills to Black youth. The primarily focus in many inner city schools is on the 3 R's or specific academic skills, thus little or no consideration is given to the humanities (i.e. performing, manual arts etc. Thus the many dimensions where talent can be demonstrated is structured out of the curricula consideration of many schools where Black youth attend. The fact that inner city schools have student records which indicate a decrement in academic skills will compared with student records in more favored or advantaged school has been well documented. I say that to indicate that I don't take issue with focusing on academic skill development, but I do take issue with limiting the child's exposure to many other potential talent areas that are within the preview of the schools' curricula considerations be non "target area" schools.

Providing Opportunities for Expression

Many at this point may be thinking that I am very critical of schools' efforts in this direction, let me assure you that I am not critical enough. It is my belief that criticism in itself does serve a function, but it's not enough one must begin to shape this criticism into some meaningful methods for analyzing and attempting to rectify the causes for the criticism. Thus it's my intention at this time to suggest a few methods for constructive intervention focused on discovering and developing the talents of the Black student.

1) Teachers must be provided with the opportunity to explore their own creativity. Thus pre service and in service training in workshops with a condusive climate for the exploration of teacher attitudes towards"Blacks" and/or "different cultures" as well as for fostering teacher talents seems to be needed. Simply stated more money or materials is not the answer.

2) Provide opportunities for the student to express his talents within the school and more specifically the classroom. For example, introduce a "brainstorming" game in which the child can begin to develop more ways of looking at situations and solutions to problems. Provide time in the school day for talent demonstrations by the child to the class. Introduce discussions which will expand the childs' concept of talent.

3) There has been much discussion of a "negative peer culture influence" that exerts pressure on the Black child. This influence can be positive as well as negative and in the educational context I choose to look at its potitive nature. Therefore involve the students in the process of identifying talents in other students. So often we use what we think is positive reinforcement for the child by saying "that's a good job" when we and he knows it's not so, and that

this is an attempt to help him do better. The child also knows that he can get a more honest and meaningful appraisal fo his performance from his peers. In other facets of our adult life such as the court system we recognize that the judgement of our peers is a potent factor which is supposed to assure us of honest and impartial deliberation.

4) Development of a network of resources that are external to the school to identify talented students, to suppliment or take over specialized instruction and development of talents. This is a two prong suggestion, firstly; it suggests that there are some talents that the school can recognize, but not have the resources to develop; secondly it suggests that the school should relate in a meanirgful fashion to the community in which it's in (a critical factor in Black communities). What this approach then calls for is a partnership between school and community resources geared and generated to assist in the education of the community's youth. Along with this partnership should be an attempt to include indigenous talented professionals and non professionals in the process of talent identification and development. Again the children could be of great assistance in identifying and procuring the talented resourses of significance to them. Much of the research on self esteem indicates that how the child views himself is strongly influenced by the reflections of himself that he receives which are generated by significant others in his life space. (Epps 1970).[20] Thus if schools educating the Black child truly want to enhance the child's self concept and consequently the child's performance in school, they have to begin to make use of resources in the community in which they exist.

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20. E.G. Epps Interpersonal Relations and Motivation: Implications for Teachers of Disadvantaged Children, Journal of Negro Education Winter 1970 p 14-25.

DEVELOPMENTAL ISSUES

The search for and the development of the talents of the children should be a continuing process. There are therefore a few developmental issues which must be considered:

1) That the child will be in need of guidance in terms of making some decisions concerning his talents and the development of them. The school should be of major assistance if financial resources are necessary for continue progression in these talents. The guidance sessions almost have to be saturated with a continuous discussion of higher level development of the talent with a considerable amount of attention payed to the provision of monetary resources, and how they can be acquired.

2) Parental and child attitudes must be taken into consideration. A basic assumption has to be made, and that is, that the parent would and does want the child to develop to his full potential, whether they feel they can provide all the resources necessary for this development is another issue. The schools role again is to conduct parent meets and parent-child meetings in the school with a focus on clearly specifying the options available and necessary for higher level talent development. We have to understand the pressures that indicate to the parents that the children should develop skills and talents which will put bread on the table. Many Black parents feel they can't afford the luxury of any other type of talent or skill other than those which provide immediate income. Along with parent sessions the school could provide opportunities for the siblings of the children in their school after school. The rationale for this approach is that it gives the school another chance to identify late bloomers, while at the same time focusing in on a group who can be supportive and aid in the

reinforcement of the talent of his sibling.

SUMMATION

In summary, this presentation is a call to action for educators. We need closer scrutiny of our training programs to ensure that the teachers produced have their racial attitudes and behaviors explored and dealt with. We need to make some extremely strong statements about whether some students are ready to instruct any student when they have assumptions about students that will deny their full development of their talents. Educators must cease and desist in administrion, and interpreting test structually designed to exclude the Black Life Style and relegate Black children to classes which retard their psychological, social, and academic development. Lastly, school, family, and community must be engaged in a process which will be an initial step in helping educators gain information and knowledge through which sound educational programs can be provided which will encourage the identification and development of the talents of Black Students.

Haven't you heard the quest has just begun
Don't you know that the joy, the joy of the day
The day, that we all, that we all will be proud to say
That we are young gifted, young gifted and Black -
and its sure enough where its at
Do you believe it's sure enough where its at.

CURRICULUMS FOR NURTURING BLACK TALENT DURING THE ELEMENTARY AND SECONDARY SCHOOL YEARS

-David L. Mallette-

If one would use W. E. B. Dubois' "talent tenth concept," it would be immediately seen that the black percentage of creative talent is disproportionately low with the rare exception of athletics and entertainment. Inevitably, what comes to mind is the lack of opportunities for these other talents to come forth. Since the source for the majority of Americans who have had these opportunities is the elementary and secondary schools, one must turn to this source for opportunities for black talent.

Because of the long tenure of these school levels in our nation, the question is raised as to why these institutions have been reluctant to develop special programs for the academically-talented blacks. Ironically, when the history is revealed, it is evident that the effort has been inadequate for all groups. One has to look at it from the usual conservative backdrop of education insofar as change is concerned. Fortunately, this attitude appears to be changing.

For example, in my state of North Carolina, school units have been able to receive special funds from the General Assembly in increasing amounts since 1961 to support approximately 1/4 of the exceptionally talented using the following standards for identification:

(a) score of 120 or higher on a group IQ test

(b) group academic achievement is at grade level or better

(c) a majority of A's and B's

(d) and/or possess other characteristics of giftedness and talents to the extent that they need and can profit from programs for gifted and talented

(e) shall be recommended by his teacher and/or his principal.

So, in essence, we are not reaching all the gifted children of any ethnic origin and the problems of reaching blacks is magnified by numerous factors. One is the type of standardized tests given which places the blacks at a decided disadvantage for meeting norms that are often narrow conceptions of what is gifted or talented. Another factor is the fierce competition for the few programs that do exist. As a result, some of the blacks that do meet the stipulated conditions are often discriminated against. In some out-of-state schools which I have visited, less than 2% of those enrolled in gifted classes were blacks, although the total black population represented from 20 to 30% of the total school enrollment.

Some teachers (black and white) have low expectancy of black students. This has brought about a self-fulfilling prophecy that has taken its toll of potential talent among the black students. Counselors have played an active role in denying entry into these programs by many devious tactics. Some of this is a result of prejudice, but a lot more is through ignorance and fear--ignorance of the life style, intelligence, and aspiration of the black student; fear of the independent and critical thinker because of the trend to equate these attributes with militancy.

However, in spite of this negative thinking, more black students have been identified and revealed to be gifted and talented. In my state of North Carolina, a number have been revealed. However, any attempt to enumerate the number of students or the number of programs would have to be generalized from the programs for the total school population. This is particularly true since the tremendous decrease in predominately black schools.

The official program for the state, The Exceptionally Talented, has been instrumental in revealing high academic performance, but I am sure the number of blacks is small because of the entry standards that I mentioned previously. The itinerant science program and program orientation (Rocky Mt.), grades 5 and 6, and the Itinerant Science Teacher in Beaufort County, grades 5-8, are examples.

The Rocky Mt. project serves seven schools with two teachers seeing students twice weekly for one and one-half hours for each session. Although the program is based on science, other areas are correlated. Five units of work are given yearly. The first unitsis on how to study, investigative method, and how to do research. The contractual method is used. No one textbook is used. Parents are involved.

The Beaufort project is almost similar with only one teacher. No grades are given nor are textbooks used. Pupils decide the area of science that they enjoy studying most. The students produce projects and take field trips related to their special interest. The organization is a multiage one. Some achievers who do not possess an IQ of 120 may be included in the program. Class size varies from six to twenty.

Other programs in which black talents have been revealed are the Junior Science & Humanities Program, which is supported by the U. S. Army and headquartered at Duke University, and Science Fairs. A black student won recognition for the utilization of a computer program method for determining the specific

area of a cancerous patient's body to receive radiation treatment. This method resulted in a considerable lessening of the time for a patient receiving treatment. This was done in collaboration with a white student from the same high school. One student won national recognition for his study of the effects of centrifugal motion on the sex cycle of mice. The Governor's School at Winston-Salem, a similar project, has been instrumental in revealing black talent in many areas.

This year the winners of $1,000.00 scholarships from the William Hearst Foundation were two black students (boy and girl), who competed with twenty top contenders from across the state. These students also won a two-week stay with Congress during the month of February.

If I were to cite any educational objectives, it would be to increase in number the kind of students I have just mentioned. I believe if there is ever a huge reservoir of untapped talented human resources, it is that of the minority groups, especially the black group. Each school unit, each state, and each teacher and administrator should set as a yearly goal to increase the identification of black gifted and talented by fourfold each year. A corollary would be the placing of these students in any program that would develop their talents. More specifically, these objectives would indicate terminal performance. The objectives would include entry behavior such as desire to learn, communication skills, and ability to generalize or abstract. It would also include reading and listing abilities as well as each student's learning pace.

The design would be based upon some outstanding scheme of instructional sequence such as Bloom's Taxonomy of Cognitive Objectives and Krathwohl's Taxonomy of the Affective Domain. The instruction would increase in a spiral fashion on each of these levels according to grade level or the students' level of sophistication in any area. The variables of institution, behavioral, instructional, and measurement would be inherent in the design.

Some means by which such a design could be implemented are shown in the package of handouts placed in your seats. Please look at them as I attempt to give some elaboration. These ideas are not original. They are ones that some of you have read. Perhaps some of you have utilized them in your instructional program.

The first is an overall scheme for program development which I believe can be easily adapted to increase the nurturing and development of black talent. Please note the first step--commitment. One must believe that this is a worthwhile and necessary endeavor. Without commitment, no program, no matter how well designed, will succeed. Let's commit ourselves to increase the number of black students involved in a gifted program by fourfold. If you have ten blacks in any such program, increase the number by forty. Obligate yourself to have this accomplished by June 1973. Regardless of your position--teacher, administrator, curriculum specialist, Northern, Southern, Western, and Eastern, black or white--make the commitment. Once the commitment is made, you will be surprised how easily it can be done.

What is the target area? The target area is the untapped resources of black talent in this country--talent that is desperately needed to solve the physical, social, and environmental problems of the world if we are to survive. The needs of developing this talent are self-evident. The need for a program that is relevant to these students is interwovenly connected with the causes for irrelevance that are shown in your printouts. The most prevalent causes of irrelevance are the use of teaching materials and methods that ignore the learner's feeling and the use of teaching content that ignores the concerns of learners.

The three-tier curriculum prescription is a model that could be utilized for this cause. Highly individualized instruction in the reading, computation and writing skills, drawing talents and abilities that develop individual creativity and promote exploration of interests, and group inquiry curriculum which involves social issues and problems that are related to self and the exploration of self, and others, in terms of the commonalities, are found in all.

Finally, listed is a model for developing a curriculum of affect. To me, this is the most important ingredient because I think it is the lack of this component which creates the despair and negative self-images that undermined the nourishment of black talent in the first place.

Please study these for any assistance they may give you in carrying out your commitment. Once you have accomplished this, find where your resources are, get the program approved from whomever is the decision-maker, implement your program, evaluate it, and spread the good news. Having done this, you will have moved a long way in accomplishing the purposes of education, as stated by Alvin Toffler in his book, FUTURE SHOCK, which deals with problem-solving, relating to people, and making decisions.

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SIMILARITIES OF ATTITUDES AND BACKGROUND FACTORS AMONG SUCCESSFUL WOMEN

What are the obstacles to success in professional life which particularly affect gifted women? How do we know there are obstacles which pertain to women, but not to men? We have only to look at the gross difference in the numbers of women who manage to complete professional training, and who go on to work, achieve, and find self-actualization at an appropriate level in a chosen profession. If we assume as many gifted women in the population as men - and there is every reason to believe that the numbers are approximately equal - then substantially more women should be found in high professional ranks than currently is the case. Even omitting those women who elect to remain at home to raise families or to fulfill the traditional homemaker role, the percentage of women from the total laboring force who make it into top-level managerial and professional positions is singularly low. Fewer women than men complete college; an even lower percentage of women complete graduate degrees; and Ginsberg reports that the percentage of earned doctorates awarded to women in 1960

Ginsberg, Eli, et al., Life Styles of Educated Women. New York: Columbia University Press, 1966.

was lower than it had been thirty years earlier. Even assuming that substantial numbers of gifted women voluntarily curtail their educations at a lower level than their equally bright male peers, this decision too often is dictated by cultural definitions of women's roles. There simply are fewer options open to women.

How early does the culture begin to shape little girls' views of their roles, and how much influence does this early shaping have upon the child's ultimate success in life - if we define success as full utilization of potential? Sex role identity is established in the first two or three years of life, largely on the basis of the child's identification with the same-sex parent. A little girl models herself after her mother-therefore the type of sex role the mother has adopted for herself profoundly influences her daughter. By this modeling process, a little girl learns to behave in ways that

are acceptably feminine. In short, she acquires the sex-role standards that are defined by her culture. Traditionally, in our culture, these have included being passive, non-aggressive, nurturant, and cultivating personal attractiveness, traits which tend to be incompatible with success-striving. The strength of a girl's identity with her mother as well as how good a female model her mother happens to be are both important predictors of the strength of the girl's sex-role identity. Learning appropriate sex-role behaviors also is influenced by such factors as the desire for affection and acceptance (rewards) from family and peers, and, on the negative side, conditioned by anxiety over possible rejection if sex-role behavior is seen as inappropriate. These factors, then, nudge girls toward adopting those feminine traits which are considered "normal" for the culture.

Hoffman, M.L. and Hoffman, Lois W. Review of Child Development Research, Vol. I. New York: Russell Sage Foundation, 1964.

A questionnaire recently completed by more than 100 successful women in the professions, and by a group of housewives who are college educated but not currently employed has pointed up some interesting factors which appear to relate to the issues of achievement. None of this group was tested for intellectual aptitude. The assumption was made that women who managed to overcome the sexual stereotypes which prevailed at the time they elected careers in areas uncommonly entered by women, who completed their training, and who today are successfully, even brilliantly, working in those careers obviously are above average in intellectual power and motivational drive.

We were especially interested in trying to discover differences between the several groups of women answering the questionnaire which might account for differences in their motivation toward success, and in personal achievement. The assumption was made that how a woman was raised, the kind of sex-role model her mother provided, perhaps the kind of discipline used by her parents, the attitudes held toward appropriate roles for women by both parents and other associated factors would bear upon her ultimate success in overriding the stereotypes and in manipulating the systematic discriminatory practices which she would encounter later in life.

Despite the inability of this pilot study to get all the pertinent information we

might have desired, some interesting factors were uncovered. For easier interpretation of data, the subjects were divided into four groups: Attorneys, including several judges, College Professors, Other Professionals (which is composed of a diverse group including many University librarians, Administrative Assistants, and a scattering of school principals, pharmacists, chemists, and others. A final group of Housewives all had at least bachelor degrees, some had previously worked, but none was currently employed. Ages of women in the study ranged from 28-65 with a mean of about 45. Thus we are looking at a sample of women the mean of whom were born in the 1920's. This implies that those women who report having had working mothers and/or whose mothers were college educated were somewhat unusual for that time.

Of the groups studied, 47% of the Attorneys reported their mothers attended college, and 10% stated that their mothers had earned graduate degrees. College Professors reported that 39% of their mothers had earned undergraduate degrees and 39% had graduate degrees! In contrast, only 6% of the mothers of the Housewife group had earned graduate degrees.

The extent of the education of the mother appears to be more significant in terms of future achievement of daughters than does extent of education of fathers, except in the case of Attorneys. Interestingly no Housewife reported her father as having less than a 9th grade education, while 20% of the Other Professionals and 37% of the College Professors did. 47% of both fathers and mothers of Attorneys attended college, and 22% of Attorneys' fathers earned graduate degrees. However, only 9% of College Professors' fathers earned graduate degrees, while 39% of their mothers did!

At first glance it seemed surprising that Housewives' fathers had earned more graduate degrees than any other single group (31%), while their mothers earned the fewest (6%). However, this makes sense if you accept the fact that the mother is the primary influence upon the daughters' as a role model. As we will see, other research has found that girls raised in families where the father is the dominant figure tend to become traditional types of females. Successful, well-educated men of the era covered in this study tended to have wives who were full-time homemakers. Indeed, many women wrote in comments on the

questionnaire to the effect that "the wife of a professional man in the 1920's did not even consider employment! "It just wasn't done!"

A recent study by Jean Lipman-Blumen identified the factors in a woman's life which influence her to adopt either a traditional or a contemporary sex role, and speaks to some of the same issues as our study. Lipman-Blumen asserts that women who have adopted

Lipman-Blumen, Jean. How Ideology Shapes Women's Lives. Scientific American; 226,1, Jan., 1972.

a contemporary sex role, which implies egalitarian relationships between men and women and a sharing of homemaking, child care, and financial responsibilities, tended to come from families in which neither parent was dominant, or where the mother was dominant. In families where the father dominated, daughters tended to develop the traditional concept of the female role, where the woman saw herself as the stay-at-home, child-rearing, domestic type, financially supported by her husband.

Several answers from our questionnaire appear to substantiate this finding. For instance, the dominant parent in the home was reportedly the mother (69%) or neither parent (9%) or a total of 78% for College Professors. According to Lipman-Blumen's data, this group should be contemporary-type women - and this would appear to be the case. The same appears to be true of Attorneys, where 47% of the mothers or 15% neither dominated; and for Other Professionals where in 31% of the cases the mother dominated, and in 15% neither dominated. This then appears to be a very important factor in the backgrounds of women who later find success in the professions. Among Housewives, only 12% reported their mothers to have dominated, and only 7% reported that neither parent dominated.

Another factor relating to the issue of parent domination in the home - at least in the eyes of the children - is which parent disciplines the children. The mother performed this function in 68% of College Professors' and Attorneys' families, but only in 43% of Housewives families.

Major decisions in the family were made by mothers, report 45% of College Professors, but by only 6% of Housewives' mothers. If little girls model themselves after their mothers, then the child who sees her mother in a position of competence and authority

rather than impotence and submission appears substantially more likely to set her future goals on positions which are superior rather than inferior in terms of autonomy.

Lipman-Blumen found that the mother's satisfaction or dissatisfaction with her role as homemaker profoundly influenced her daughter's ultimate acceptance of the contemporary or the traditional female role model. Dissatisfied mothers tended to raise daughters who sought equalitarian roles for themselves, while satisfied mothers tended to produce daughters who were more traditional-minded. One of our questions speaks to this obliquely. 15% of Attorneys report their mothers to have been "caustic and belittling" of their daughters' aspirations and achievements. A caustic and belittling mother does not sound like someone who is happy in her role as homemaker! Another question,"Did your mother express or convey the feeling that she was happy and satisfied to be a full time homemaker?" provides additional support for Lipman-Blumens finding. 62% of Housewives answered this affirmatively, while the professional groups much less frequently did so. 50% of Housewives also reported that "father was proud to support his wife at home", while only 25% of College Professors said this was true of their fathers.

Lipman-Blumen reported that when mothers encourage daughters to attend graduate school, daughters are more likely to accept the contemporary sex role. When both parents encourage in this direction, the daughter is even more likely to be contemporary. Our study substantiates this. 89% of Attorneys and 68% of Professors report that their mothers never discouraged their trying new things, and 81% of Professors, but only 56% of Housewives report their fathers encouraged them to try new things. 31% of Housewives said that their fathers had stated that "some professions are not for females", while all the professional groups reported this only about half as frequently. College Professors reported that their mothers supported their career choices (79%) - but about 74% of Housewives also reported this! However, since most of the Housewife group had originally elected a typical feminine type career (nursing, teaching), we probably are viewing a different phenomena here. That is, the mothers of the College Professors themselves had attained a high educational level, and therefore would be likely to be supportive of their daughters, even in career choices more common for males than for females. The mothers

of women who later became Housewives did not have such high levels of education themselves. Thus they presumably might have seen feminine-type careers for their daughters as completely appropriate. As women attain higher degrees, it is logical to assume that they also become more aware of potential career fields, and may encourage daughters to enter non-traditional areas. However, this is mere speculation because our data are not sufficiently specific in this area. Fathers were reportedly less supportive of daughters' career choices in all ~~categories~~ groups. However, 69% of Other Professionals' fathers did support their choices, while only 51% of Attorneys fathers did. Since the Other Professionals group contains the largest numbers of women in traditional professions for women, fathers may have been more pleased than they would have been had daughters chosen more male-dominated professions.

Women who adopt the Contemporary female role tend to have been adolescents who managed to achieve psychological distance from their families and to see themselves as separate individuals, said Lipman-Blumen. She notes that 83% of contemporary role women were likely to have rejected both parents as objects of admiration. Our questionnaire asked several questions which bear upon this issue directly or indirectly. When asked, "Who most influenced your career choice?", many respondents wrote in "Nobody else influenced me. I made my own decision." A significant proportion named teachers, peers, and "others" as the primary influential agent, while less than 21% of all groups except Housewives were influenced by parents. 32% of Housewives were influenced by mothers and 25% by fathers.

Another question asked how relationships with parents had fared during the teen years. 42% of Attorneys reported that relationships with mothers had deteriorated and 26% reported relationships with fathers had deteriorated. However, 18% of Housewives reported that their relationships with fathers had improved! Another question dealt with how the women acted in response to parents' expressed views toward what parents felt was appropriate or inappropriate behavior and task involvement for girls. While only 21% of Attorneys said that they accepted parental viewpoints and acted accordingly, 55% of Housewives answered this affirmatively. 16% of Attorneys said they vocally disagreed with parents while no Housewife reported this. 32% of Attorneys added that they were indifferent to parental views, 11% of Housewives did say they sometimes were ambivalent about parental

viewpoints.

In the Lipman-Blumen study the traditional women's role was more often seen in women who had been brought up either in the Catholic or the Protestant faiths, while the contemporary role was more often the choice of women who had been brought up either as atheists, with no strong religious training, or in the Jewish faith. While our study did not ask respondents to state their religions, it did ask whether or not religion was "very much a part of" their childhoods, and asked them to state whether their fathers and/or their mothers were active church members. Housewives most often of all the groups reported affirmatively that religion was important in their childhoods (93%). In contrast, only 52% of Attorneys so reported. 56% of Housewives said their fathers, and and 62% said their mothers were active church members. Again, Attorneys were lowest with only 21% of fathers and 46% of mothers as active church members.

Lipman-Blumen found that girls who admired their fathers more than their mothers tended toward the contemporary feminine role, while those who most admired their mothers tended toward the traditional role. Our questionnaire did not ask which parent was most admired, but rather asked "with which parent did you most clearly identify" in terms of achievement, congeniality of interests, similarity of aspirations, in personality traits, and in intelligence. 57% of College Professors identified with mothers in achievement, but only42% identified with fathers on that factor. Recall that more College Professors' mothers had graduate degrees than did their husbands. Thus we might predict that Professors would tend toward the contemporary sex role. Among Housewives, 30% identified with their fathers in terms of achievement, and 31% with their mothers. Fathers of this group were significantly better educated than their wives, and in most cases were the only employed parent. Housewives, then, according to Lipman-Blumen's study, would be likely to adopt the traditional feminine role.

In identifying with a parent on the basis of congeniality of interests, 50% of our Housewife group identified with mothers, closely followed by 47% of Attorneys. The latter finding is rather surprising in view of the fact that Attorneys' parents were quite equal in educational level, and their mothers were seen as the dominant parent. However, Attorneys most often reported a deteriorating relationship with their mothers

during adolescence, so perhaps at that time their interests began to coincide more with those of their fathers. Certainly this particular group of Attorneys does not seem to fit into Lipman-Blumens traditional role group - so our data clashes with hers on this point.

Other Professionals and Professors (54%) equally reported greater congeniality of interests with their fathers, so we might conclude that these women would fit the contemporary role model. Interestingly, all groups identified far more strongly with fathers (50-61%) than with mothers (25-27%) on the intellectual dimension. Whether that is because fathers, with their higher level positions in the world of work appeared more intelligent to their daughters, or whether the daughters had simply accepted the cultural definition of women as less capable - or whether there is some further explanation, we just do not know. In personality factors, too, all groups (48-54%) identified with fathers significantly more often than with mothers (15-37%). We can only speculate that fathers who get out in the world appear more interesting characters than do mothers who are less likely to work out of the home, or, if they do, to have less stimulating and exciting careers.

Our study, which appears to substantiate the findings of Lipman-Blumen in most areas, leaves us with some insights and many perplexities. Are there any costs to self for the woman who elects a non-typical career choice? It would not seem so. In answer to a question about self-perceptions of self since entering college, many answered that their self perceptions had changed substantially in a positive direction - this included 73% of the Attorneys, 62% of Other Professionals, 55% of the College Professors, but only 43% of the Housewives. Could it be that the Housewives in middle age tend to find less to feel positively about in terms of self? A final question, asking how the woman would describe herself today indicates that 65% of the Other Professionals felt very secure and certain about who they are and what they want from life. Perhaps we can conclude that this group has had the best of two worlds - being professionally successful, but in feminine-area careers. Next highest were College Professors, where 55% reported being secure about themselves. Since teaching - though not necessarily college teaching - is seen as a traditional woman's job area, women professors may have less ambivalence about themselves than some professionals who are in predominantly male fields. At any rate, only 32% of

Attorneys reported feeling secure and certain about themselves and what they want out of life. It is possible that the struggle to enter and remain productive in what remains a male stronghold tends to take its toll over time in terms of feelings of security and self-worth. Many Attorneys appended notes to the questionnaire to state that they were much discriminated against in their profession. However we may speculate about this, there are some clear indications that the Attorneys in this sample have distinctively different backgrounds and personalities than any of the other groups. We hope to pursue this implication in future studies.

31% of Housewives said they felt secure and certain of who they are and of what they want from life. What of the other 69%? We don't know, but again might speculate that middle aged housewives may wish for something which they do not have - - fulfillment of a different kind, something to interestingly and constructively occupy their time now that children are nearly grown and husbands are occupied at the peaks of their careers.

In our next study, we plan to modify our questionnaire to clarify some issues which are clouded, and we hope to reach a wider sample of successful women. We feel there is much to be learned by looking at women who have achieved professional success and comfortable feelings about themselves as human beings. Hopefully some of this information will lead us to discover more effective ways of rearing girls so that many more of them will be able to use their full potential, and to be happy in the process.